AMERICAN VETERINARY REVIEW.

DECEMBER, 1909.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, October 15, 1909.

CONCLUSIONS OF THE NINTH INTERNATIONAL VETERINARY CONGRESS.—As our excellent friend and collaborator, Prof. W. L. Williams, has said in "His Personal Impressions" upon the ninth international veterinary congress, this last event is passed and already preparations for the next, the tenth, which is to be held in London, are talked of among the members of the permanent committees of organization.

As I was not at The Hague, to participate in all or in part of the good work that was going on in that celebrated week in September, I had taken measures to gather sufficient material to resume the general tone of the discussions, the general remarks of the various reporters, etc. But when I had received the documents that I thought necessary, I found in front of me so much, that it was evident that any attempt on my part to do justice could not be but very imperfect and would require more space than I could take from my ordinary chronicle. Yet I could not ignore the whole subject. My friends in the States wanted to know more than what they had read in last month's issue. To try to acquit myself of something of my quality of chronicler, I have decided to present only the conclusions of the Congress upon some of the principal questions treated at the various meetings, referring those who may desire more complete information to the book of the entire proceedings whose publication will, I hear, soon be issued, and which will be sent to all registered members. To be discussed at the general meetings there were twelve ques-

tions or subjects presented. And for the meetings of sessions a total of twenty. Many reporters had been appointed. Their names and professional standing were carefully selected and they were told of the value of the reports that they were to make. All of those, however, we cannot publish as they are too numerous. I have then selected, as the principal and interesting part, the conclusions that were adopted, and extracted them from all that I have before me, making an apology for those that I may have to leave aside for the present.

* * *

I will consider to-day the questions of the general meetings, except the second and fourth, whose object is already realized in America. The work of the sessions will be for next month.

First Question.—*Governmental efforts against swine-plague and hog-cholera (swine fever) based upon the recent researches regarding their etiology, vaccination, serovaccination, etc.*

Conclusions: "Swine-plague and contagious pneumonia of pigs are in their nature distinct diseases which differ in their mode of infection, and ought to be combated separately by the veterinary police. Swine fever is caused by filtrable virus, and being a very dangerous contagious disease, ought to be combated without taking into consideration at the same time the nature of secondary infections, and ought to be put an end to by all possible means on account of the great injury it causes to agriculture.

"In districts where the disease has not yet taken any great hold, or only shows itself occasionally, it is desirable to destroy diseased or suspected animals, the proprietor being reasonably compensated. In badly-infected districts, where a great number of pigs are infected, the limitation of the plague ought to be provisionally obtained as rigorously as possible according to the usual measures taken against contagious diseases. In this struggle the preventive inoculation is a factor able to diminish the mortality since it, at the same time, immunizes the animals in an active manner.

"The results obtained up to the present time permit hope that direct and active immunity of animals absolutely healthy will be an efficient preventative; so much so that the study of preventive inoculation ought to be encouraged by governments. In order to prevent contagious pneumonia transmitted in reality by sick animals, less rigorous measures will suffice. To combat the disease in the district where it is rampant, it is of the utmost importance to isolate infected districts, and to render obligatory the registration and the control of the trade in pigs. These measures will find strong support in the institution of the obligatory control of meat and in the ordering that dead pigs shall be taken to an abattoir and examined in the case of suspected disease.

"Besides these measures taken by the veterinary police, it is of the greatest importance to instruct cattle salesmen in the same direction.

"On these lines the following should be given the first place: The provisional isolation of newly purchased animals should be considered; also the hygienic treatment of pigs; the slaughter of the sick or partially recovered animals; the regular disinfection of stables, and in the case of swine fever, preventive inoculation."

FIFTH QUESTION.—*The sanitary control of milk and the obligatory systematic inspection of meat.*

CONCLUSIONS: "The Ninth International Veterinary Congress in The Hague sees in the appointment of veterinary surgeons as official experts in zootechnical matters, a powerful factor for the development and advancement of zootechny, and declares that with regard to the great economical signification of this profession, only qualified veterinarians should be regarded as candidates for the posts of official experts."

FIFTH QUESTION.—*The sanitary control of milk and the obligatory systematic inspection of meat.*

CONCLUSIONS: Presented by Prof. Ostertag and adopted unanimously: "The regulation of the control and transport of milk is very urgent. It must include: 1. Control of the dairies

and that of the markets. The control of the dairies and of the markets belong to veterinarians. The demonstration of frauds with water or any other way belongs to specialists. The milk sold for public use as of superior quality must have some special condition."

SIXTH QUESTION.—*The methods employed in treating carcases and meat, with the object of rendering them harmless.*

CONCLUSIONS: Presented by Doct. F. von Puntigam and adopted: "That there should be a system of government inspection of flocks and herds before slaughter and examination of carcases with power to confiscate any part found to be unfit for human food; the veterinary inspector appointed to have the power, in certain cases, to order the sterilization of such portion or portions as would, after such treatment, be fit for human consumption or other use. To work this system economically and profitably, the author recommended the installation of special apparatus for sterilization, and also for the utilization of by-products which being of no value, if untreated, would thus be made useful and profitable to the community."

SEVENTH QUESTION.—*The prophilaxy and pathology of protozoan diseases with demonstration of the specific parasites and transmitting animals.*

CONCLUSIONS: After a most remarkable report, Doctor Theiler, of South Africa, presented the following, which were passed unanimously:

"1. The Veterinary Congress at the Hague reaffirms the recommendations formulated at the Congress at Budapest and impresses upon the governments which have not yet organized a veterinary service the necessity for doing so with as little delay as possible.

"2. It is necessary for the control of animal plagues in the colonies that all governments concerned should materially encourage the study of such diseases. Since the biology of a disease must form the basis of all veterinary operations of an

administrative character, it is desirable that wherever possible scientific veterinary investigators should be sent into territories where diseases which have not yet been investigated are prevalent, and since the work of these investigators will be of common interest both from the scientific point of view as well as from that of State Veterinary Medicine, it should be communicated to all governments concerned.

" 3. For the purpose of carrying out the above proposals, there should be established an International Bureau of tropical Diseases of Animals, consisting of veterinary representatives from all the countries concerned, and the Interational Bureau should publish a bulletin giving the results of all recent international publications dealing with tropical diseases of animals."

EIGHTH QUESTION.—*Governmental control of sera and bacterial products and their preparations by government.*

CONCLUSIONS of Prof. Leclainche: " In default of direct preparation by the state of products of a bacterial nature for the use of the veterinary profession, the preparation and the sale of these products ought to be placed under the control of the state."

NINTH QUESTION.—*Avian tuberculosis in its relation to tuberculosis in mammalia.*

CONCLUSIONS of Prof. Arloing, adopted unanimously:

" 1. Avian tuberculosis is not a special disease, distinct from tuberculosis of mammalia.

" 2. Its infectious agent is simply a variation of the bacillus of Koch, with which it is connected by a common primary character and from which it distinguishes itself only by secondary and moreover inconstant properties.

" 3. The avian variety itself is subject to variations like the human and the bovine bacillus.

" 4. These variations allow avian bacilli, some time to vegetate in mammalia and bacilli of mammalia directly to infect birds.

" 5. As to the anatomo-pathological character of avian tuberculosis it causes a special reaction of the tissues of the birds suffering from tuberculous inflammation.

"6. The avian bacillus, being simply a variety of the bovine tuberculosis bacillus, in some cases capable of infecting mammalia, it stands to reason that, with regard to avian tuberculosis the same preventive measures should be applied as are taken against tuberculous meat."

TENTH QUESTION.—*Sterility of cows and its dependence upon the infectious diseases of the genital organs.*

CONCLUSIONS: After a thorough examination of the question, Prof. Hesse proposed a series of conclusions. The following were unanimously adopted:

"1. There exists an intimate relation between sterility of bovines and the contagious diseases of the genital organs, specially vaginitis and infectious follicular metritis.

"2. A great increase in the frequency of the diseases of the ovaries and of the uterus has been observed since the more frequent apparition of vaginitis and catarrhal metritis.

"3. The hypertrophy of the *Corpus luteum sparcum,* specific to bovines, results from a reflex irritation of the ovaries, due to vaginitis and infectious follicular metritis."

ELEVENTH QUESTION.—*Governmental efforts against tuberculosis with regard to the ways of infection in this disease.*

CONCLUSIONS: After a long consideration of the question, the following were put to the Congress:

"This congress suggests that the manufacture of tuberculin shall be under the control of the government and sold only by them to veterinary surgeons and medical practitioners.

"That all stock reacting to the tuberculin test shall neither be used for stud purposes nor for consumption and that all the governments shall be approached with a view to making this a law."

TWELFTH QUESTION.—*Construction and interior of stables in relation to the prophilaxy of diseases of animals, specially tuberculosis.*

The suggestion was made that a cow-sheds and dairies order should be framed by all governments and that the condi-

tions contained in them be enforced by law; also frequent inspection by government veterinary surgeons.

* * *

FUNCTIONS OF THE OMENTUM.—At the Royal Academy of Medicine of Bruxelles, Prof. P. Heger reported a series of experiments which in collaboration with Dr. Heger Gilbert he has made on the functions of the omentum, and which had for results to demonstrate the mechanism with which the omentum exercises its protecting action in the entire peritoneal cavity. Three series of experiments were made and the results rendered more apparent by photographic and radiographic illustrations, which were recorded in the Bulletin of the Academy.

In the first experiments several cubic centimeters of physiologic solution, holding animal charcoal in suspension, were injected in the peritoneum of various animals. Although the injections were made at different points and in such a manner as to disseminate in the whole abdomen the colored particles, it was seen that these soon gathered in the omentum in such quantity that the aspect of that membrane differed entirely from that of the visceral or parietal peritoneal surface; the omentum was thickened and the microscopic examinations show that the phagocytosis of the colored particles, by the extraordinary numerous leucocytes, was completed. However, this power of attracting and of holding these colored particles does not belong only to the great omentum. Animal charcoal was also present upon the other epiploic folds and principally the gastro-hepatic.

In fact, it is as if the omentum has been the seat of an agglutinating secretion. If porphyrized dust of iron is thrown over the abdominal visceras of a dog recently killed, and if, with a magnet, one tries to draw the iron particles, he will observe that these which are on the omentum, are adherent more than those upon the surrounding surfaces; and as the magnet is brought close to the omentum, dusted with iron, it raises it, thus demonstrating how real the agglutination is.

* * *

In a second series of experiments, Prof. Heger has followed the accumulation of the metallic substances in the omentum of the living animal in taking upon successive radiographics, after the introduction, in the peritoneal cavity, of iron dust, sub-nitrate of bismuth, of cinnabar, etc. On a radiographic view, taken upon a guinea pig ten minutes after the intra-peritoneal injection of bismuth, it is noticed that between the intestinal folds there appears the opaque substance disseminated all through the abdomen. In a view, taken 48 hours after, the dissemination of the powder has been replaced by its accumulation into one single dark spot corresponding, as ulterior post mortem showed it, to the omentum carrying the sub-nitrate of bismuth. The sweeping of the cavity had been rapidly performed by the omentum. A contrary proof can be made; the omentum is not much developed in very young rabbits, and the phenomena of the gathering of the bismuth does not take place in them. Even after 48 hours iron dust injected in the peritoneal cavity still remains disseminated all over the abdominal cavity.

In animals that have no diaphragm and no omentum, the localization of foreign bodies introduced into the abdomen is indefinitely slow. One gramme of porphyrized iron injected into the abdomen of a frog remains disseminated after half hours, after 48 hours and even after five days; without omentum, there is no early localization. A similar fact exists for fishes, in the abdomen of which small lead shots have been introduced. They remain mobile and without contracting any adhesion for a very long time.

* * *

In a third series of experiments large foreign bodies have been introduced into the peritoneal cavity of dogs and rabbits, such as small glass pearls, or pieces of cork or lead. In general these foreign bodies are rapidly encysted by the omentum, which becomes hypertrophied round them in various ways and according to the nature of the cases.

If glass pearls, these are very rapidly fixed upon the omentum and the localization takes place, no matter where the introduction has occurred. Then they travel along the lymphatics and go to gather together towards the great curvature of the stomach, or perhaps by preference round the pylorus, where they are stopped at least temporarily by the presence of the lymphatic glands of that region. With time the pearls form thin masses, quite compact, in the neighborhood of the origin of the thoracic duct, and as far as the experiments have gone they remain there for an indefinite time.

Voluminous and heavy bodies, such as a piece of lead weighing 7 or 8 grammes, do not act in the same way. At the beginning of their presence in the abdominal cavity they travel but little; lodged in the region where their weight has carried them, they then become encysted in the omentum which becomes considerably hypertrophied round them and which surrounds them entirely. With time the cyst that is thus formed becomes loose from the omentum, that has remained normal and it drops anywhere in the abdominal cavity. This fact will serve to explain the presence of foreign bodies in the abdomen, found at post mortem, but having remained unsuspected during life.

If the foreign body is very slight, a well aseptized cork, for instance, it will readily follow the displacements of the omentum and in this case there will be no amputation or separation from it. The authors have not seen any, but they have observed adhesions established, through the intervention of the omentum, between the cork and the intestines, in such a way that the elimination of the foreign body might, in all appearances, have taken place in time through the natural way.

There is anyhow one surgical observation of a large but light foreign body having passed from the peritoneal cavity, where it had been introduced into the intestinal canal, and through it make its way out. In such condition, the omentum acts in promoting the adhesions and protecting the peritoneum from infection. In these experiments the authors have also observed that the broad ligaments possess properties similar to those noticed for the omen-

tum. These movable folds fix in the pelvis insoluble particles or the pearls that are introduced in it; they consequently would in females fill a protective function similar to that exercised in the entire peritoneal cavity by the omentum.

* * *

ANTITETANIC SEROTHERAPY.—At the International Congress of Human Medicine held in September at Budapest, one of the reporters, Mr. Bourget, of Lausanne, Switzerland, considered in a general way the clinical results of serotherapy, and after making a general onslaught of most sera, he severely criticised successively that of typhoid fever, of pneumonia, of tuberculosis, of erysipelas, to which he denied any kind of value. And as far as the antitetanic serum, he says: "For tetanus, after having admitted it as a specific serum, preventive and curative, the enthusiasm of the first days for this therapeutic method has diminished. Everywhere the preventive inefficacy is mentioned and its curative action is ignored. What proves it still more is that the technic of its application continues to vary enormously, although all the ways to introduce it in the system have been tested, the skin, veins and lately the lateral ventricles * * *"

If such is the records of the antitetanic serotherapy in human medicine, it is not the same in veterinary medicine. But yet it seems as if the method with which it can be resorted to in horses is still the subject of discussion. Some while ago, an army veterinarian, Dr. Huguier, in a publication sent to one of the home societies, asked if in the application of anti-tetanic serum as a preventive, one or two injections was necessary; and sustained by an experience of ten years, he declared that one injection was perfectly sufficient. This announcement was followed by another from a country practitioner who advanced the same opinion. The question was taken up by another veterinarian, who told the story of an animal which having received a severe traumatic injury, had administered to him one injection of serum followed six days after by a second, the regular classical indication. Yet this horse died ten days later with an acute attack of the disease. For

this practitioner two injections are certainly more prudent than one, if not strictly essentially necessary!

In the *Revue Veterinaire,* of Toulouse, Professor Labat seems to decide the question in the affirmative. *One preventive injection of antitetanic serum is sufficient!*

Nocard, it is true, has written: "The preventive treatment of tetanus consists of two subcutaneous injections of 10 C. C. of serum, the first immediately after the traumatism or the operation and the second eight or ten days after."

To this Prof. Labat says: The injection of a single dose of antitetanic serum is sufficient to avoid tetanus. Of course the injection shall be made as early as possible after the operation or the accidental trauma is received. For the Professor, if the preventive action of the serum is sure, it is only temporary, and this action may be kept up by injections successively administered. Yet some of the subjects that he has treated did receive only one injection, and this did prove sufficient and the vaccinating action, although temporary, lasted five, six weeks and even more. And finally he concludes: "Out of seven hundred and six subjects operated, at least six hundred and forty had but one injection, and they were all protected against tetanus.

Since September, 1902, Prof. Labat has never given more than one injection. In the last seven years his observations count 1,500 subjects operated, making a total of more than 2,000 animals treated by this method, which has proved sufficient, as not one of these patients contracted the disease.

With such a statistic the problem is evidently solved in favor of only one injection; and yet suppose the animal should, notwithstanding that one, die, what might be the result, some may ask? I mean as far as the owner is concerned. What will veterinarians in America, who use the serum extensively, say on the subject?

* * *

Iodurated Chloroform Applications.—The use of tincture of iodine to disinfect the skin before surgical operations seems to become quite general. Indeed, iodine is an excellent

antiseptic, but the tincture by its caustic and necroting action may give rise to some serious objections.

In 1906 Prof. Chassevant proposed, instead of the tincture of iodine which is an alcoholic solution always susceptible to alterations, the use of iodurated chloroform, which possesses all the revulsive and antiseptic properties of iodine, but besides does not produce pain, no scars, no sclerosis of the epidermis. He has prepared a chloroformic solution of iodine at 1/15, one gramme of iodine and 20 of chloroform. This solution keeps its strength, does not change and can be kept indefinitely by covering the glass cork of the bottle with a cap of rubber. Even if, after partial evaporation of the chloroform, some little deposits of iodine occurred on the walls of the bottle, the solution that remains can still be used. It is not altered, only a little more concentrated. Solutions eight months old have been used and have proved as good as fresh ones recently prepared. To use it, the following are recommended: Disinfect the skin, wipe it out dry, and make a slight friction with a ball of wadding. THE SKIN MUST BE THOROUGHLY DRY. With a paint brush or a little bullet of wadding dipped into the iodurated chloroform, apply a coat of it over the part where the operation is to be performed. When this is completed, the excess of iodine that may remain on the skin can be removed with a little pure chloroform, although there is no harm in leaving it on the skin as it will rapidly evaporate. With this application the skin always remains perfectly supple and there is no scaling of the epidermis. In the surgery of small animals this disinfection and anesthesia of the skin will prove very advantageous.

* * *

HUMAN OR BOVINE BACILLI.—The determination of the bovine or human origin of the bacilli of Koch when isolated from tubercular lesions of man may sometimes be of great importance. By previous investigations made by Drs. Calmette and Guerin these gentlemen had called the attention upon the property possessed by tuberculous bacilli of bovine origin to cultivate.

when in presence of glycerinated bovine bile at 5 per cent., and that likewise bacilli of human or aviary origin did respectively cultivate in human or fowl bile.

The study of four samples of human bacilli made recently by these investigators has shown the correctness of these facts, as these bacilli did grow only on human bile. Testing a fifth sample of human bacilli, obtained from a child dead from acute miliary tuberculosis, a fine culture took place on bovine bile, and it was thought that possibly the infection in this case was of bovine origin. To verify this, a second quantity of this tuberculous culture was introduced in the udder of a she-goat, which had just delivered a kid.

In such conditions, if the culture used is of human origin, a benignant mammitis takes place with an infection that remains latent for months and even for years in the corresponding retromammary glands, while if the culture is of bovine origin, the mammitis that follows is always severe and is rapidly followed by cachexia and death.

This test, applied with the sample of tuberculous matter taken from the child that had died with acute miliary tuberculosis, revealed without possible doubt the bovine origin of the tuberculous bacilli.

The primitively intestinal infection had for cause the ingestion of milk from tuberculous cows.

* * *

Bibliographical Notices and References.—Prof. Cadeac has just added another volume to his Encyclopedia in publishing his "Surgical Pathology of Joints in Domestic Animals" (Pathologie Chirurgicale des articulations des animaux domestiques).

This is the second volume relating to the pathology of the apparatus of locomotion, which is now completed and closes the wide field of surgical pathology in general. The entire work is superior and the result of many years of work, studies and observations.

In this second volume, articulations and their pathology fill the entire work, being in that the continuation of the first volume which we had the pleasure to notice in these pages. In over 400 pages, and containing 143 excellent illustrations, the author treats first of articular wounds in general and of these in the various regions. In a second chapter are presented arthritis and their varieties. Ankylosis of the vertebræ and other articulations are followed by an excellent consideration upon the deviation of the vertebral column, with the pathology of Lordosis, Cyphosis and Scoliosis, thus closing the subjects relating to equines. Bovines, small ruminating animals, pigs, dogs and even birds are considered in the same manner in the balance of the work. Each animal species having its own diseases, and as a special pathology could not be written for each, Prof. Cadeac has adopted an excellent method, which has permitted him to follow in his whole encyclopedia a kind of differential and comparative pathology that the reader can embrace almost at a glance. The arrangement of the subject and its division is very correct and advantageous to the reader, qualities that render the book very pleasant to read. This second volume can be had as well as the entire collection from the house of J. B. Bailliere and Son, 19 rue Hautefeuille, Paris.

* * *

The Journal of Tropical Veterinary Sciences, Vol. IV., No. 3, that came lately, contains "Some Illustrated Notes on Rabies," by Col. F. Raymond, F. R. C. V. S.; "Futher Experiments on the Treatment of Surra with Atoxyl and Orpiment and Other Preparations of Arsenic," by Capt. J. D. E. Holmes, M. A. D. S.; "The Normal and Abnormal Temperature of the Camel," with a note on the normal pulse and respiration, by A. S. Leese, L. C. V. D.; "Trypanosomiasis and Other Diseases in Camels," with experiments in connection with the former, by J. Burton Cleland, M. D.; "Surra in the Federal Malay States," by H. Fraser, M. D.; "Distribution of Certain Species of Biting Flies in the Federated Malay States," by H. C. Pratt; "Contribution to the

Study of Trypanosomiasis and to the Geographical Distribution of Some of the Blood Sucking Insects," by J. E. S. Old, M. R. V. S.

* * *

I have also on my table the second edition of the book of Doctor K. Winslow on the " Production and Handling of Clean Milk." The advanced sheets have already been considered and reviewed by our co-editor and I can add nothing to the deserved good notice made by him. It would be an unnecessary repetition.

A. L.

AMERICAN VETERINARY MEDICAL ASSOCIATION TO MEET AT SAN FRANCISCO IN 1910.

As our November number went to press, the indications were strong that San Francisco would be the next meeting place of the A. V. M. A. Hence our little squib to the effect that the dial of the A. V. M. A. compass seemed to be fluttering in the direction of the " Golden West."

Before we were out of press (but too late to announce the fact to our readers in that issue of the REVIEW), the place and date of the 1910 meeting were set for San Francisco, California, September 6-7-8-9.

While to members east of the Rocky Mountains, California will seem at first impossible, it will not be much harder for those west of the Rockies than it would be for them to attend a meeting in a city on the Atlantic seaboard, and it will make an opportunity for those further east to see one of the most, if not the *most* beautiful state in our Union, that they have all hoped to see at some time, but have had no idea how or when the opportunity was to come about. By the committee deciding thus early upon the meeting place, three-fourths of the year is afforded the members to plan for a trip to the land of giant forests and perpetual springtime; a treat that no veterinarian should deny himself if there is any possible way of accomplishing it.

THE GOVERNOR OF PENNSYLVANIA APPOINTS A STATE VETERINARIAN.

In appointing Dr. Samuel H. Gilliland, of Marietta, Pa., to succeed the late lamented Dr. Leonard Pearson as State Veterinarian, the Governor of Pennsylvania has manifested his usual excellent judgment, and acted in the interests of the commonwealth which he governs.

Dr. Gilliland's close association with Dr. Pearson, coupled with his broad education and training, has rendered him peculiarly fitted to continue the work which Dr. Pearson's illness and subsequent demise compelled him to relinquish. The fortunate circumstance of Dr. Gilliland having been born and raised upon a farm made the very foundation of his education correct; for there, as nowhere else, can the knowledge of the habits of farm animals and farm life, so important to a man entering upon such a position, be acquired. Then with a splendid basic education acquired at the Bellefont Academy and the Millersville State Normal School, he entered the University of Pennsylvania; graduating from the veterinary school of that institution in 1901, and from the medical school three years later.

Desirous of pursuing his studies along those lines still further, he afterward spent considerable time, on three different occasions, studying in the veterinary schools of Europe; where he made a special study of comparative pathology. Being thus equipped, he was appointed assistant bacteriologist to the Pennsylvania State Livestock Sanitary Board, in which capacity he served for eight years, when, upon the resignation of Dr. M. P. Ravenel, he succeeded him as bacteriologist, and had direct charge of the research work of the board under Dr. Leonard Pearson; during which time the following articles were published by him in connection with Drs. Pearson and Ravenel: "The Immunization of Cattle Against Tuberculosis," "The Effect of Tuberculosis Vaccination Upon Cattle Already Affected with Tuberculosis," "The Disinfectant Value of Ammonium Persulphate," "Formaldehyde Gas as a Disinfectant," and "The Arti-

ficial Immunization of Cattle Against Tuberculosis Reported at the International Veterinary Congress at Buda Pesth."

He has also been connected with the teaching work at the University of Pennsylvania Veterinary School in the capacity of demonstrator of bacteriology. His enthusiasm and progresiveness is suggested by the fact that he is a member of three veterinary associations and eight or ten medical and other scientific organizations. We compliment His Excellency the Governor, and congratulate the people of Pennsylvania on the appointment of Dr. Gilliland to this important and responsible position.

THE NATIONAL HORSE SHOW IN NEW YORK.—In the November number of the REVIEW we predicted that the National Horse Show, to be held at Madison Square Garden the second week in November, would be the best that had been held in some time; and stated that the horse was gradually but surely regaining his foothold with the solid and sane people of the world.

Our observations during show-week convinced us that our prediction was correct and that our statement was well grounded, as men had large entries this year that had not exhibited for years. The classes were exceptionally good and were managed with almost military precision, each class appearing in the ring at not alone the hour, but the minute they were scheduled to appear.

The judges, too, for the various classes, had been selected with the utmost care, fitness evidently having been the requisite qualification. For example, Prof. Andrew Smith, of Toronto, judged a thoroughbred class; Prof. C. F. Curtis, of the Agricultural College, Ames, Ia., judged the Clydesdales and heavy draft horses, in harness and in hand; Prof. J. L. Carlyle, Soda Springs, Idaho, was one of the judges of the Percheron and Belgian classes; and among the judges of hunters and jumpers was Dr. Charles McEachran, of Montreal. Consequently an earnestness prevailed that inspired confidence and was most gratifying.

The veterinarians consisted of two of the old guard, viz., Dr. J. E. Ryder, of New York City, and Dr. William Sheppard, of Sheepshead Bay, N. Y.; the third being Dr. E. R. Voorhees, of Somerville, N. J.

Perhaps one of the most convincing features of the show, indicative of the returning popularity of the horse, was the large attendance of enthusiastic spectators, who were there day after day and night after night expressing their appreciation of equine quality by applauding the performances of the splendid exhibits. The horse *is* popular with the people to-day, and hundreds more horse-drawn turnouts would be seen upon the streets of our big cities if the street conditions resulting from the use of automobiles did not render the driving of them more or less dangerous and altogether uncomfortable. The automobile is a fad, and as its popularity decreases (as it surely will), the horse will again assume his former position nearest to man's heart. It is up-hill work because of the street conditions referred to, but if fifty, twenty-five, or even one dozen millionaires or society people were to discard their automobiles at one time and replace them with handsome horse-drawn turnouts in a city like New York, for example, hundreds of others would follow their example. It would then be easy, as the outrageous condition of our city streets would then no longer be tolerated. Consistency would be demanded, and the same city ordinance that forbids the spilling of harmless dirt upon a paved street from a horse-drawn dirt truck would forbid the spilling of dangerous, stinking oil on the streets throughout the length and breadth of our cities; so that, with the least drop of rain on them, driving or walking upon them is perilous. Picture our cities once more without the automobile, or with the number decreased and its use regulated, with their clean streets, and their parks so that one could once again inhale the fragrance of the flowers and the foliage, instead of being compelled to constantly breathe the unpleasant smell of oil. Picture the peace and tranquillity of life when horses were tied to posts outside our doors, unharmed and unmolested, waiting to take us for a pleasant, restful drive, and

compare it with the rushing, whirring bustle of the auto, and involuntarily you will say, with Richard the Third, "My kingdom for a horse." Every man who would like to see a return to those peaceful conditions should do his part toward inspiring them by using the best horse-turnout that he can procure. Veterinarians should not need such a suggestion, but too often even *they* need it. Many of them are indifferent as to the kind of a horse they drive or the appointments of their turnout; others "will not be bothered with a horse," but pay more out in carfare each month than would keep one; and still others, the chief offenders, have allowed themselves to become victims of the fad and use automobiles. Their excuse is they "can get around faster," but in most instances they do not need to, they are simply victims of the speed craze.

Mr. Alfred G. Vanderbilt demonstrated his ability to show some speed with horses through New York City even under the present conditions of the streets when, on the last day of the Horse Show, he stepped his four-in-hand team from the Arrowhead Inn to the Madison Square Garden in thirty-eight minutes, a distance of more than nine miles, right through the heart of the busy city of New York. It was a splendid exhibition of his ability as a reinsman and of the quality of his horses.

It is interesting as well as distressing to learn that under the new tuberculin law, which went into effect on the first of June last, three offenders have been caught at one of the most dastardly offenses that can be practiced by any one calling himself a man, and, worse still, professional man. Yes, it is even as bad as that; veterinarians actually giving certificates of the health of herds of cattle when the same were not justified. The very men that we look to as of the greatest assistance to the Department of Agriculture in stamping out this scourge are, by their duplicity and nefarious practices, disseminating it and undoing the work that the Department of Agriculture and their honest brethren are striving so hard and so earnestly to accomplish. The matter has been referred to the Attorney-General. There are other offenders (not of the veterinary profession) who will also have to answer to the state.

ORIGINAL ARTICLES.

RABIES.*

FROM THE TOLEDO CLINICAL LABORATORY.

BY R. C. LONGFELLOW, M.D., PROFESSOR OF BIOLOGY, ST. JOHN'S UNIVERSITY, TOLEDO, OHIO.

In presenting this subject as briefly as possible, much important matter for want of time will be omitted; it is hoped by your essayist that at the conclusion my friends who requested this paper will not be in the same state of mind as the man, who being bitten by a dog, went in to interview the owner. The owner, in a soothing voice, advised the victim, "Oh, he is not mad!" "Of course not," yelled the victim. "What the h—l has he got to be mad about?" It's me that is mad!"

The name of this disease is a compound of the two Greek words Udor and phobos, which expresses the meaning of water fear, while the Latin rabies expresses the same meaning, really the correct term for this disease.

Rabies appears to have been recognized as a distinct disease by the Egyptians, the Israelites, and as far back as 322 B. C., Aristotle wrote of a disease in dogs as follows: "Dogs suffer from rabies: this induces a state of madness, and all animals which are bitten by them are likewise attacked by rabies." Among the older writers of that day, Hippocrates does not speak of it, but it is spoken of in an indirect manner by Virgil, Horace, Plutarch, Ovid and Celsus, who describe the disease from the apparent symptoms in the animal infected.

This disease can be communicated to all mammals, by infection from one animal to another, or by inoculation for study.

* Read by request before the Ohio State Society of Comparative Medicine, First Annual Session, Upper Sandusky, Ohio, August 26, 1909. Read before the Pathological Section, Academy of Medicine, Toledo and Lucas County, Ohio, November 12, 1909.

Rabies stands in the foreground of all the terrible diseases which can come to the human family: tetanus, delirium tremens are not to be compared as to mental agony, the physical suffering of the patient and distress of the helpless friends.

This disease was quite rare in the United States until about thirty-five years ago, when this infection began to increase, was studied only in a small way by pathologists, or the difficulties to study it seemed to be insurmountable. No disease of the animal or human family has as many accepted fairy tales as rabies, and at the present time, many fallacies are yet thoroughly believed in by many people, in all stations of life, as to the causes and symptoms. Among the popular ideas are that if a person be bitten by a dog in health, that person will become a victim to the disease should the dog later on become rabid. The facts are, as Nicolas has proven, that the saliva of a rabid animal is virulent from six to eight days before the symptoms develop, that if ten or more days pass over after the person is bitten, and the dog continues to be normal after a suspicious bite, the individual will not develop rabies, even if the dog becomes rabid in near future.

For this reason above all others, the animal should not be killed, but kindly cared for, kept free from excitement, with regulated food, watched for a time. Another more serious fallacy is the so-called mad stone, the faith in them, and the stones are handed down from one generation to the next as a priceless heir-loom, frequently bought for large sums of money.

The so-called mad stone is found in the stomach, gall, bladder or intestines of domestic or wild animals; is composed of hair that the animal has licked and swallowed, interwoven with vegetable or wood fibres, grain beards, moulded or pressed by the stomach wall into oval or rounded shapes.

Some times the so-called mad stones are gall stones, intestinal concretions, or a ball of hair acted on for a long time by the stomach secretions. One of these heir-looms your essayist examined some years ago was composed of hair, some wood fibre, wheat beards and cotton fibre, well woven and dense. Frequently people will travel hundreds of miles to have the mad

stone applied, and many of those present will recall the wonderful tales that were told about the efficacy of a mad stone that was owned by a resident of this county back in the fifties. The so-called mad stone is applied to the wound; the popular idea is that if it adheres, the longer and tighter the more potent is the cure; that if the stone does not stick, or only for a short time, then the bite is not rabic, and the patient feels secure from infection.

The fact is, that the adherence of the so-called mad stone depends wholly upon the amount of blood or secretion present from the wound; profuse bleeding or secretion infiltrates the porous structure of the stone, which is held in place by the drying of the oozing, just as cotton or cloth will do. After a few days the stone becomes loosened, falls off as healing goes on; if it should adhere for some days, then the patient is supposed to have had a severe infection, and is now free from it when the stone no longer adheres. While the curative values of the so-called mad stone is absolutely mythical, no more than an oyster shell, goose bone or rabbit foot, the danger lies in the fact of false security the patient and friends have in the stone, that if the bite was rabic, the disease may develop later when too late to use proper treatment. Another common idea is, that the animal is afraid of water if it has rabies; if not afraid of water, then it is free from that disease. The fact is that during the early stages of the disease, the dog will swim across ponds and creeks in his mad chase, will later try to drink water, if accessible, and the paralysis of the throat muscles does not prevent.

Animals will try to get water, make frantic efforts to drink, but being unable to do so by throat paralysis, gives the appearance of convulsions at the sight of water, when in fact there is no fear of water, in itself, but the inability to drink. This condition is true in the human family, for the same reasons, and must not be mistaken for fear of water. Another very common fallacy is the so-called dog days, which are held to be between the first of July and the middle of August, because the dog star Sirius is above the horizon with the sun.

The facts are that the dog star has no more connection with the disease than the Indian cigar sign, but during this season of the year, dogs are prone to wander about seeking cool places, food and water, may, if infected, bite a larger number of animals than in colder months. A false idea as to the color of the dog's mouth: when the bite occurs, if the mouth is black, then the disease is sure, and if the mouth is red, the bite is considered harmless. The facts are that the black appearance is due to a normal pigmentation, very common to all dogs, has been noticed more in the northern States.

In the southern States, a black tongue appearance has been noticed, which may occur in rabies, but is due to the protruding tongue, exposure to air for some time. Lyssophobia, or fear of rabies is very common to neurotic persons, who have been bitten by a normal dog, hysteria on that subject, and as no lesions develop, recovery takes place naturally. Now and then an apparent spontaneous case of rabies will appear, which is difficult to trace or not traced, then the popular idea is, that it was due to lack of care, food or water. This is as impossible as tuberculosis, syphilis or conception to occur without the causative germ. Again, there are some practitioners as well as laity, who hold there is no such condition as rabies. One physician recently said to your essayist, "Why I have practised medicine for forty-two odd years, and never saw a case of rabies!"

Rabies must then be produced by inoculation from an animal which is rabic, whose saliva is impregnated with the virus in varying quantities, conveyed from one animal to another by penetrating teeth wounds, in which nerves have been wounded and virus deposited.

The virus has resisted all chemic investigation, bacteriologic study has not revealed as yet the diagnostic signs, but this virus is now known to travel only by the nerves, not by the blood current or lymphatic system, later a disease of the central nervous system, with great toxemia produced in the last stages.

Incubation.

Incubation is not fixed, differs in animals, because the period depends on the location of the bite, the extent of wounds, and quantity of virus penetrating the tissues. Bites through the clothing wipe off much of the virus from the teeth, while exposed surfaces like the face, hands present more dangerous locations, because of more numerous nerve supply near the surface. The virus travels by the nerves inoculated, thus scratches or superficial wounds are not as dangerous as deeper penetration of the animal's teeth, when more virus is likely to be deposited.

Suppuration, much bleeding of deeper wounds may lessen the danger, but cannot be relied upon. The rabies seen in dogs, called street rabies, usually has a period of ten days incubation, but may be from fifteen to ninety days, the usual limits; even cases of shorter and longer duration are recorded. Fixed virus is a laboratory product, which is obtained by running the virus through a series of fifty to fifty-two rabbits, which secures a virus of strongest potency, representing all the virulence possible. The shortest period of incubation in rabbits from fixed virus is from six to eight days, about the same for guinea pigs, dogs, cats, monkeys. Incubation depends upon the proximity or distance of infection from the brain, thus infection about the feet will require a longer period than infection about the neck or face.

The period of incubation in children is shorter than in adults; incubation is longer in horses than cattle; pigs, goats, dogs, monkeys and cats apparently about the same. The virus is more virulent in wolves, dogs, monkeys, cats, rabbits, horses, cattle, goats in the order named, but this is not an infallible rule.

Types of Rabies.

The dog being the most common carrier of the infection, the types in dogs will be first described, which presents two distinct forms, the dumb and furious types, the symptoms of each the greatest importance to enable observers to care for and protect against spread of the disease.

The furious type presents all the active conditions: the dumb form, the type seen in last stages of the furious usually, or the dumb form may be seen from the first, in which the disease runs a more rapid course, the toxemia great, incubation like that of the furious type, uncertain. The furious type is seen especially in dogs, horses, cattle, cats, while in pigs, goats, the dumb form is usually seen; exceptions are, however, seen.

General Symptoms.

Both types of infection give change in disposition: the usually kind, playful dog becomes morose, fretful, easily excited in earlier stages; dogs of opposite natural disposition may become affectionate, excited, but will answer owner's call or commands.

A few days of such symptoms, the dog becomes more irritable, snaps if approached, will savagely bite, gnaw at a cane pointed within reach; the short bark is changed into a combination of whine, howl and bark, very easily remembered if once heard, and very characteristic symptom.

Unless in pen, during this stage, will pick up small stones, bits of wood, foreign substances, straw, shavings, may show tendency to bite at or gnaw at site of infection, which proves an irritation or itching if not pain at the point where inoculated, if the site can be reached. If the dog can not reach the spot, as the disease progresses, he will rub himself very industriously or roll on the place of irritation with unusual activity, cease for a few moments, begin again. The dog tries in this stage to get under cover, will try to get under a building, porch, seek secluded spots, look or stares vacantly, refuse to come out on owner's command, refuse food, or if eaten, very little; eats nervously, drinks water quickly in gulps, then retires to the dark or secluded spot to renew former actions for a time.

In this stage will glare at any one approaching, will bite stranger or owner if they come in reach; the restlessness increases, saliva increases, seen about the jaws, may now show slight difficulty in swallowing. In this stage the dog may leave

home, travel for miles unfed, bite any person or animal met on the way, does not bark nor howl, but noiselessly goes on his way scattering the infection.

The dog may return, gaunt, dirty, bloody from fights with other dogs, or fall exhausted by the wayside, lower jaws hanging from increasing paralysis, the tongue protruding becomes black from dirt and exposure to air, pupils very irregular, eyes glazed and set. The hind legs first, then trunk, muscles of throat, fore legs last become paralyzed, sometimes the throat muscles become paralyzed first, then other parts later, death usually in six to eight days from first stages.

The dumb form is not so common, the symptoms somewhat similar to the furious type, but the marked irritability is absent, paralysis early appearing, very early seeking the secluded spot, will not come out on command, the successive conditions appearing rapidly, until death occurs in three to five days. In the dumb form the early profusions of tongue, with its exposure to air, becomes blackened, gives the so-called black tongue, so feared by all persons not conversant with the symptoms.

Rabies must not be confounded with dog distemper, the dog being confined with appropriate food, watched for developments, which will diagnose the case correctly. So rare are the recorded cases in which animals or the human patient infected from rabies have recovered, that it is safe to say that no cases of genuine rabies recovers, either in animal or human family. Dogs have died of other diseases, found on investigation to have been infected with rabies, yet not developed sufficiently to be recognized. In the dog collectively, the chief symptoms are the changes in disposition, which is one of the most important early symptoms, should be most carefully noted and remembered.

Change in the normal bark, actions, repeated efforts to swallow, seeking secluded spots, leaving home to return thin, muddy, wounded or picking up foreign substances, beginning paralysis in throat muscles, hind legs, etc., comatose condition, death. The

same general conditions appear in most of the domestic animals, except the pig, in which the dumb form is usually most frequently seen, but some times the furious type is marked, as in cow, horse, or cat. In the human family, the patient complains of headache, mental depression, anorexia, sometimes pyrexia, emesis, sleeplessness, hypersensibility, especially of the throat, increasing husky voice, increasing symptoms in a few days to the furious type, in which strapping to bed is necessary. One common idea is, that the dog or animal froths at the mouth, which is a mistake; the saliva drips from the jaws in animals, frothing must not be looked for, with possible exception in cattle, which do often show some frothing.

Subsequent Care of the Dog.

As soon as a dog has bitten an individual, the popular cry is to kill the dog at once, before it can be ascertained whether the dog was infected or not; if not, ten or more days will usually diagnose the case. Often a dog will bite strangers or members of the family from irritation or fear of being harmed, which is the natural method of protection and must not be overlooked, if killed at once, will show no signs of rabies probably.

If the dog is infected, be allowed to die of the disease, which is the only proper course to pursue, then there can be no confusion as to the findings which are so frequently encountered, when the animal is killed too early in the stages of the disease development, may in some cases show no signs whatever. If the dog is a pet or a farm animal representing a money value, it can be returned to the owner later on when proved free from infection, that if killed at once becomes an unknown quantity and loss to the owner. Dog owners should place their suspected dogs under the care of the veterinary, who is the most competent to watch, treat and prevent further fear and spread of rabies, not try to keep them at home, shut up with little or no care, or are liable to be released accidentally.

Posted Animal.

The common method of killing the animal is to shoot through the head, which so frequently tears up the brain so as to render the desired parts useless or unsatisfactory. The proper method is to shoot the animal through the heart, is the humane as well as most rapid means of death, preserves intact the head and cervical vertebra.

One head of a dog sent our laboratory this spring was from appearances shot with a nine-inch projectile, the head almost entirely gone, cut off too short to secure portions of the cord, decomposition advanced so as to render rabbit inoculation useless.

No special post mortem changes are characteristic, or constant in this disease, but in all cases possible the stomach should be opened, inspected, to ascertain contents if any congestion, hemorrhagic conditions or negative findings. The presence in the stomach of stones, bits of wood, shavings, straw, coal, foreign matter is very suspicious of rabies in any animal. Posted animals usually show empty stomach, hemorrhagic gastric mucosa, without foreign matter or substances, and does not in any way exclude rabies. Congestion of the meninges, of the larynx and pharynx may or may not be present, or no post mortem changes seen, which taken in connection with the fact of the animal having died of an unknown disease is suspicious of rabies. The histologic changes are not constant, because of varying conditions, as to development of the disease at the time of killing, but if it has died of the disease, or killed in last stages, the histologic findings will be satisfactory in most cases, the diagnostic features quite constant. Some times heads are received in such a state of decomposition as to render investigation unsatisfactory, or the brain too hemorrhagic to search for certain microscopic bodies, or the brain injured to a degree that positive information is uncertain. Cell changes occur in any head from 24 hours on, according to the temperature and exposure to air after death or killing, decomposition of the brain matter renders inoculation of rabbits useless, as the rabbits will develop and die of septicemia.

The proper method for investigation is to shoot the animal through the heart, sever the head from the body, allowing about two inches of cervical vertebræ to be attached, which contains the plexiform ganglia externally with the large blood vessels near the ear. If the animal is large, like horse, cow or pig, the head should be severed as above directed, the head opened by a veterinary, the one half or one hemisphere should be removed with part of the cord attached, placed at once in neutral glycerine, shipped as soon as possible to the laboratory. Glycerine should be neither alkaline or acid, but absolutely neutral, must be tested for reaction before used; if acid rendered neutral by the titration of normal sodium hydroxid with phenolphtalein as indicator. If the glycerine is alkaline, titrate with normal hydrochloric acid using methyl orange as indicator.

To preserve the virus to use in animal inoculation, if necessary, the preservation in neutral glycerine is absolutely required, a portion of the medula is taken under the corpus striatum for inoculation purposes. Smaller heads, like dog, cat, can be severed with a portion of the neck, sent by express if not too far, and in warm months should be packed in a tin box, this surrounded with ice, sent in wooden box as soon as possible, as the post mortem changes occur quickly, rendering the whole head useless.

Laboratory Method of Diagnosis.

To obtain satisfactory findings, the brain must come to the laboratory in good condition, fresh as possible, or the investigation may be indefinite or unsatisfactory, which mean so much to the patient and family. Prior to 1875, rabies was studied only by rabbit inoculation of rabic brain or suspected animal, which requires at least fourteen days for incubation, and not infrequently it happened that while the test was being made with the rabbits, the patient developed the disease about the same time the rabbits demonstrated the infection. This demonstrated the fact that an earlier method was necessary, and during 1875 the systematic study of the histologic changes was begun, continued

until 1886, and later in 1892, when Victor Babes gave to the world his discovered lesions. Babes found degeneration of nerve cells in the medulla, invasion of embryonic cells in the normal space occupied by nerve cells. To these collection of cells he gave the name of rabic tubercles, and are found most numerous in the transverse section of the medulla near the central canal, are known as Babes' tubercles. Meantime, the virus was found by other workers in the spinal cord, submaxillary gland, pancreas, lacrymal and mammary glands by inoculation methods.

In 1900, A. Van Gehuchten and C. Nelis after studying the pathologic changes for some years, elaborated the problems, found special changes in the brain which were the proliferation of endothelial cells lining the capsule of the ganglionic cells. Such pathologic changes are found most frequently in the plexiform ganglia, often in the ganglion of Gasser, in which the endothelial cells appear as almost covering from sight the ganglionic cell, or laid over like scales. In 1903, Adelchi Negri, working at the Pavia University in Italy, published his findings, microscopic bodies of then unknown structure, found in the nerve cells, and up to this time are called Negri bodies, and as diagnostic of rabies.

The Negri bodies have been studied by many and increasing number of pathologists, are at this time considered as protozoan bodies, for they present definite, characteristic morphology, cylic history, as certain forms predominate in certain stages of the disease.

These bodies form series, multiplication, have staining peculiarities which demonstrate protozoa theory. These Negri bodies are of several forms, some circular like blood cells, others elongated, small and larger; some are crescents, some contain granules that take the nuclear stain or opposite in the central body, which indicate these forms to be matured fully, but when and where cell division occurs is unknown at this time. Your essayist has advanced the idea that the changes in shapes might come from the angle at which these bodies are cut by the microtone knife, which occurs in many other cellular bodies in sectioning.

In some forms the protoplasm remains unstained, a vacuole appearance; some take the stain deeply, others lightly, all of which indicate protozoan life. It may be shown later that these so-called Negri bodies are degenerated cells, having the life history of the macrophages, which according to Metchnikoff, are carriers of debris of, and dead cells, being consumed by these leucocytes, instead of protozoa as now considered. It is doubtful if these Negri bodies represent the virus, for they are found only in certain portions of the brain when present, but the virus and toxin are to be found in all parts of the brain of an animal dying of rabies.

That these Negri bodies are of varying sizes is shown by the fact that filtering a solution of brain substance through a Berkefeld filter, the smaller forms pass through. Emulsions of rabic brain may be greatly attenuated by high speed centrifugation, and diluted solutions can in this way be rendered harmless, if the high speed is maintained for one hour and a half. When an animal has died of rabies, or killed in the last stages of the disease, the Negri bodies are found largely in the hippocampus major, or the Ammon's horn; may sometimes be found in the cerebellum, rarely in the medulla. In our laboratory, three years' work in this field has taught us the technic, staining methods which have proved to be most reliable, and adhere strictly to proven methods, as in any service the longer the worker adheres to one reliable method the more certain are the findings and interpretation.

For want of time the details of our technic will be omitted, but as soon as a head is received, portions of the Ammon's horn are treated for histologic sections, are ready for staining for Negri bodies in nine hours. The ganglion of Gasser is taken, or the plexiform ganglia are taken for histologic examination for the Van Gehuchten-Nelis changes.

A small portion of the medulla, if decomposition is not present, is placed in neutral glycerine for animal inoculation, if necessary.

If present, the Negri bodies are found in the protoplasm of the large pyramidal nerve cells; may be seen in other cells or ex-

tra-cellular. If not found, then the Van Gehuchten-Nelis changes are searched for in the ganglia; if present, the brain is very suspicious of rabies; if neither Negri bodies nor Van Gehuchten changes are present, then if the history of the animal is suspicious, animal inoculation is done as early as possible.

Smear preparations of Ammon's horn, medulla have not proved as reliable as the histological method, and several times your essayist has found few Negri bodies present by histologic section that the smear method did not demonstrate. For this reason we use the histologic method exclusively, even if it requires a few hours longer. It is necessary often to go over a large number of sections if the Negri bodies are not found in the first few examined; we have found them in few numbers in a slide after going over twenty-one negative specimens, so it is desirable to make a number of sections for a thorough examination, retaining every third section for examination.

Absence of Negri bodies does not exclude rabies, their presence diagnostic according to our present knowledge of the disease. The animal may be killed too early for the demonstration of the Negri bodies, or the cell proliferation, which later on would have been found, as is usually the case when the animal has been killed in the last stages. If all signs are negative, the diagnosis must be uncertain, made up on the history, action of animal before being killed; if rabies seems to be indicated, then the patient should receive the benefit of the doubt, be treated at once, inoculations made if material is not decomposed. Among the recognized workers in the field of rabies, Dr. N. G. Keirle, of the Baltimore Pasteur Institute, for years a personal pupil of Pasteur, advised your essayist three years ago when with him, that "the absence of Negri bodies or cell proliferation does not prove rabies absent, since they may be present when rabies is absent, and absent when rabies is present, are not, therefore, infallible indications of rabies." Again, the Chief of the Pathological Division, Bureau Animal Industry, Washington, Dr. John R. Mohler, whose work in this field has been of greatest benefit, personally advised your essayist that the Negri bodies when found

were diagnostic, no further investigation needed. Next to the Negri bodies, the Van Gehuchten-Nelis changes Dr. Mohler holds as diagnostic, so advised by the Department. Dr. William H. Park, of the New York Board of Health, claims the Negri bodies are diagnostic, and while it appears that there is some doubt as to the pathognomic signs, yet at this time the demonstration of Negri bodies and the Van Gehuchten-Nelis cell changes give us the most positive proof of rabies before animal inoculation can be tested.

The well-known work on rabies by Dr. Anna Williams, New York Board of Health, Research Laboratory, gives great weight to the diagnosis by Negri bodies, and demonstrated her methods to your essayist. Probably no worker in this field has been as successful in diagnosis by the smear method as Dr. Williams, whose years of study has perfected this method of so called rapid diagnosis. Workers along these lines may clear up these now doubtful conditions, as future studies will solve this and other problems of rabies. The demonstration of Negri bodies and the virus present two different conditions, as an animal dying of rabies, lying in the sun, may render inert the virus, as a rabetic cord exposed to sun light for forty-eight hours becomes harmless, even if the temperature does not exceed 86° F. Decomposition does not destroy the virus, as was proved by Galtier, who inoculated with nerve centers of a dog buried 44 days, produced rabies. Exposure to sun hours after death render Negri bodies not visible, artefacts produced, which may be mistaken for Negri bodies, taking the same stain. The post mortem changes confuse the Van Gehuchten-Nelis signs, but does not for some time render the virus harmless if the animal has been covered. Freezing does not destroy the virus, partially obliterates the Negri bodies, so that a head kept frozen for months will be virulent if rabic, and a medulla that is rabic can be kept virulent indefinitely in neutral glycerine, but the glycerine must be kept neutral and sealed from the air, which renders the glycerine acid. Dogs with distemper may show cell changes identical with the cell proliferation of Van Gehuchten-Nelis, which must not be forgotten.

One worker in rabies has advanced the information that a rabetic animal has sugar in the urine, but experiments at the Department in Washington has proven that no carbohydrate was found in animals known to be infected.

The examination of the blood of an infected person in nearly all cases gives a picture of great increase in the poly-morpho-nuclear neutrophiles, little or no increase in the small or large mononuclears, no rise in the eosinophiles. In the nervous stage, the leucocytes may run up to 25,000 or higher, the poly-morpho-nuclear neutrophiles as high as 98 per cent., so that in a suspected case if the leucocytes remain normal, it is a strong evidence that infection has not taken place. In a number of cases treated, your essayist has found that during treatment there is no rise in the leucocytes, and we advocate the investigation of the blood for both diagnostic signs and as to successful protective treatments.

Local Treatment.

Dr. Park, New York Board of Health, has made many very instructive experiments. Dr. Cabot of his laboratory has found by experimentation that by injecting fixed virus into laboratory animals, cauterization within certain time gives different results as to protection. Dr. Cabot found that over 90 per cent. of guinea pigs were saved from rabies that were cauterized within 24 hours or less with fuming nitric acid.

That the danger was less if the wound was thoroughly opened up, cauterized with fuming nitric acid. Nitrate of silver, which has been so popular for years, has been superseded by others of greater safety, among these potassic permanganate, powdered, filled into the wounds after thorough cleansing has been found a very safe remedy to use, but Dr. Cabot's experiments have proven the excellent protection afforded by fuming nitric acid. Local treatment should be done at once, or as soon as possible after the wounds are inflicted, but must not be depended upon as a preventive.

Specific Treatment.

Pasteur gave the world a blessing not less than Jenner's vaccination, when in 1885 he opened the Institute in Paris, which from 1886 to 1908 held the mortality to an average of 0.18 per cent. in over 31,000 persons treated. Dr. Keirle, Baltimore Institute, reported a mortality of 0.2 per cent. in his first 1,000 cases treated, one of which died early with Bright's disease, which if not included, as it was very doubtful if infected, gives his Institute a mortality of 0.1 per cent. The first Institute in the United States was opened in New York in 1890, which held the mortality of 0.68 per cent. in 1,608 persons treated, other Institutes varying from Dr. Keirle's 0.2 per cent. to 0.68 per cent.

From 16 to 26 per cent. of all persons bitten develop rabies. The great blessing of Pasteur treatment cannot be over-estimated, consists of an active immunity, by repeated, increasing virulence of emulsions of rabbits dead from the fixed virus, the dosage of the virulence attenuated by the days of drying of the infected cords in jars over sodium or potassium hydroxid. The cords are removed from the rabbits under extreme antiseptic care, placed in tall jars, suspended over the drying agent, kept in the dark at a constant temperature of 22 to 23° C., from which a cm. is taken, rubbed up in an antiseptic mortar with 2 or 3 c. c. of sterile physiologic salt solution. The first treatment consists of an emulsion of a cord dried 14 days, so on down until a cord is used that has dried but three days, and contains all the virulence from fixed virus, the treatments covering a period daily for 21 to 23 days, according to circumstances, extent of, and location of wounds. The treatment is in no way harmful, the abscesses reported from one Institute are due wholly to faulty technic or contamination of emulsions; the patients can go about the city, only must report daily each morning for treatment, if conditions warrant, are looked after in proper way. Two treatments daily morning and evening, for the first six days, constitutes the intensive treatment by Pasteur, which can be extended a few days longer if wounds are extensive and about face or neck, before the

one treatment a day period begins. One method is to give a double dose each morning instead of divided into morning and evening dosages. This is the method used by Dr. D. W. Poor, of the New York Research Laboratory, Board of Health, will undoubtedly give same results as Pasteur's method, which is used in the Baltimore Institute. The Pasteur treatment while specific, yet must be given not later than the fifth day to be preventive, the earlier the better after bitten by suspected animal. In Hungary, Professor Hogyes, Director of the Budapest Institute, has devised a method of rubbing up fixed virus cords with sterile salt solution, beginning dose to be a dilution of one ten-thousandth, injecting daily an increasing dose down to one hundredth. This treatment in his hands has a very promising future, but has not been used in the United States as yet. Babes, Tizzoni, Centanni and others have advocated, used a serum against rabies, produced by sheep inoculations, partially digested by artificial gastric juice, the serum injected through the sheep every two months to insure active serum, used in doses of 20 c. c. or 2.5 grammes of evaporated substance. The serum treatment has few advantages, but will never become routine treatment, for the reason of special technic, cost of production which would be greater than the Pasteur treatment, which is usually about $150 for 21 days' treatment, board and lodging at the Institutes. Tizzoni claims that the rays of radium will render inert the virus of rabies, that this agent will cure the disease when the symptoms supervene. This is an unknown problem, entirely out of practical application at this time. Your essayist desires to advocate the preventive treatment for animals suspected of infection, as so frequently valuable horses, cattle, dogs or pigs might be saved to their owner, thus lessening further chances of infection and money loss. The cost of treatment will prevent the use of Pasteur treatment for animals bitten, unless the cost can be reduced.

A very peculiar feature of preventive treatment used in dogs, that not infrequently dogs that have been treated will develop the disease later on after treatment has been completed. Another drawback to the preventive treatment for horses, cattle and do-

mestic animals, is that the dosage required is so much larger than for the human, which renders it not practical.

Prevention of Rabies.

This most terrible disease admits of eradication very easily by muzzling all dogs with a human muzzle for a period of two years. As soon as a measure to this end is advocated, the dog owners and misguided sympathizers decry the idea, and it will only be eradicated by governmental enactment which will cover all states. Dogs soon become accustomed to the muzzle, become content, paying no attention to it, is not inhumane if properly fitted. Otherwise will certainly increase, as it has the past few years with greater rapidity, bringing increased dangers to the public and to the counties paying for Pasteur treatments for persons bitten by supposed rabic animals, now and then a human life sacrificed to a misguided sympathy.

Countries that have muzzled their dogs for two years have been exempt from rabies, and is now unknown in Holland, Sweden, Great Britain and in Berlin since 1883, by killing all suspected and muzzling all other dogs. The promiscuous shooting of dogs in Toledo this year has been, will be as useful in stamping out rabies in this vicinity as the "Golden Rule" administration has been in eradication of the social evil and all other open vice in Toledo. The freedom given the house dog and cat render them liable to carry in certain limits, and especially is the dog to be muzzled, as it is the universal carrier of rabies. Not every dog that is iritable, snaps at or bites an individual is rabid, and careful investigation will disclose that only a small proportion of suspected animals really are infected. Some physicians and veterinaries who prefer their cases examined in private laboratory service, where full, careful and painstaking investigation is given each head for fees, the heads in our laboratory have not all been shown to be infected.

This season so far twenty-one dogs, two cats, two pigs, one cow have been investigated. Of the dogs, seven were rabic, nine

were negative, three were so shot up as to be unsatisfactory, two were not decided, but suspicious, Negri bodies not demonstrated, but suspicious cell proliferation found. The brain too hemorrhagic in one for Negri search, suspicious cell proliferation, report so made to the re[illegible]ing physician; benefit of doubt to both patients was recommended. Decomposition was advanced, which prevented animal inoculation in these cases.

Both cats, one pig and cow are negative; one pig presented Negri bodies. The negative cases so reported have proven correct, as the time for development of rabies has long passed over, had the animals been infected. One patient bitten by their own dog was killed at once, laid out in the woods two days, when brought in had the appearance of being shot with a nine-inch projectile, the head so torn up as to render the desired parts wanting, decomposition present to prevent animal inoculation, but cell prolifeation was suspicious, so reported, and advised the benefit of doubt be given the boy, which should be done in every case like this one. The referring physician reported to me after the treatment had been started, that the commissioners had said they would not pay for the treatment unless we would state the dog was rabic. This we could not do as above stated and so reported, advised the doctor to stand pat, as if we or any member of our family had been bitten by that dog would have begun treatment at once. While these commissioners were trying to bluff the payment, what would that whole county have said had the boy not been treated, developed the disease during that wrangle? What would that county and other counties have said of us had we made negative report to please those commissioners, and the boy developed rabies meantime? The patient's life and that of others, may be, depends upon the correct results and investigation of all suspected heads; this service can only be done with greatest care and painstaking; if diagnostic, the subsequent treatment is plain, if the head is not definite, but suspicious conditions are found, then such patients should be treated at once. The treatment is harmless, the cost provided in one way or another, the chances to develop this terrible disease too great for any one

to assume the chances from a suspicious head and positive information lacking.

This has been, will be, our recommendation, and while the absolute diagnostic, pathognomic signs are yet in possible doubt, we caution our patrons as to the possible conditions when the animal has not died of the disease and all signs negative. There is no department of our laboratory service that impresses us as much as the investigation of animal heads for rabies, and demonstrates how little after all is known of this terrible disease, how faulty the present methods of diagnosis are as to absolute positive or negative findings, how much there is yet to be learned as the diagnosis in any given head. We have brought from our laboratory few specimens demonstrating the Negri bodies, the Van Gehuchten-Nelis changes, some mounted and cut specimens of cat, pig, dog, etc., which will be shown you. In response to a number of inquiries, we have made arrangements with the New York Board of Health Research Laboratory by which on 24 hours' notice we can treat any cases of suspected infection. The patient can come in and go home on the cars daily, or find lodging in the city if they so desire, as we will only furnish the treatments daily to any patient at reasonable fee. As to requests for the treatment for domestic animals, the treatment will not be given, for the reasons stated earlier in this paper.

Our store box philosopher sadly remarks, "Yeas, every dog has his day," to which his listener replies, "Yis, ivery caht hez th' noights!"

WOULDN'T GIVE IN.—One afternoon a celebrated driver, known the country round for the power of his whip and the quickness of his wit, came rattling up to the hotel door with his coach and four like an avalanche. As the coach stopped, one of the horses dropped dead.

"That was a very sudden death," remarked a bystander.

"That sudden!" coolly responded the driver. "That hoss died at the top of the hill two miles back, sir, but I wasn't going to let him down till I got to the regular stoppin' place!"

A DISCUSSION OF DE RENZI'S TREATMENT OF SOMATIC TÆNIASIS WITH MALE FERN, AND SOME TESTS OF THE TREATMENT IN GID.

By Maurice C. Hall, Scientific Assistant, Zoological Division, Bureau of Animal Industry, Washington, D. C.

Near the end of last year, De Renzi (1908) published an article reporting a method of medicinal treatment for somatic tæniasis in man which he had tried with apparently successful results. He points out that surgical interference is often dangerous or even impossible in such infections, and it is evident that a successful medicinal treatment of some sort is a thing greatly to be desired. This De Renzi believes to have discovered in the administration of repeated doses of male fern. The treatment was tried in four cases, two of the patients in question being reported as cured of cysticercus of the brain, complicated with subcutaneous cysticerci, a third of echinococcus of the liver, and a fourth of echinococcus of the lung.

Being engaged in a study of gid in sheep and its parasite, the latter commonly known as *Cœnurus cerebralis* Rud., it seemed to me that this disease offered an exceptionally good opportunity to test De Renzi's method. The parasite is nearly always located in the brain, a site identical with that claimed for the cysticercus in two of De Renzi's cases, and its destruction or removal by operation, according to a number of writers, saves only about 40 per cent. of animals operated on. Railliet, in his abstract of De Renzi's article (De Renzi, 1909), has noted that it would be interesting to test De Renzi's method on domestic animals suffering from parasitic diseases of the muscles and viscera, and mentions gid as one disease in which treatment of this sort should be attempted.

The first animal on which the treatment was tried was a sheep which had been sent in from Montana. This sheep arrived at the

Experiment Station of the Bureau of Animal Industry at Bethesda, Md., February 11, and was designated as No. 355. When examined on February 16 it showed characteristic symptoms of gid; it started in fright from every move toward it, staggered when walking and showed a lack of co-ordination when hurried, held the head to the left with the left horn higher than the right, and while it would circle to the left constantly, it could not go to the right. February 17 the sheep was down, but later was able to stand. In this case treatment was begun March 2. At this date the sheep seemed slightly better than before; it circled to the left, but could go to the right when urged and seemed stronger. Fifty grammes of male fern powder was administered in suspension in a drench of 400 c. c. of water, and this dose was repeated March 3, 4, and 5.

On March 5 the attendant who was giving the male fern to the sheep accidentally got the dose in the wind-pipe, killing the animal. A post-mortem examination showed a large cœnurus in the left side of the cerebrum, the top of the cyst visible superficially. The skull directly above was perforated over a small area. The cyst, which was ruptured in removal, was placed in water and warmed. A flowing movement of the membrane began at 35° C. and was vigorous at 40°. Motion ceased when the water was cooled to 29°, began again at 33° and was violent at 51°.

Another sheep, No. 354, had been sent in from Montana at the same time as No. 355, but had not yet shown positive symptoms of the last phase of gid. When this sheep was examined April 19, pronounced symptoms of gid were found. The animal was feeding near the fence, every now and then stopping to execute a circle to the right, coming back to where it had been feeding. It circled thirteen times in twenty minutes. The head was held constantly to the right. Respiration was about 155.

Treatment of No. 354 was begun April 22, 5 c. c. of ethereal extract of male fern, Merck (oleoresin of aspidium) being administered in two Parke-Davis No. 13 veterinary capsules, each containing 2½ c. c. of male fern. Between April 22 and May 30,

on which date the sheep was found dead, No. 354 received 27 doses of male fern extract, making a total of 135 c. c. No dose was administered on Sundays April 25, May 2, 9, 16, and 23, or on May 8, 17-19, 27 and 29, on which dates the sickly condition of the animal did not warrant it.

Shortly after the beginning of the treatment there was an apparent improvement in the sheep's condition marked by better motor co-ordination and absence of turning, lasting from April 26 to 29. A relapse followed on May 1, when turning was resumed, and from this date there was no question as to the ultimate result of the treatment. April 26 the sheep weighed 53 pounds; May 18, 44¼ pounds; May 24, 31 pounds; May 30, the morning it was found dead, the carcass weighed 29 pounds. The respiration ranged from 65 to 125 during the period from April 26 to May 14, with the exception of April 27, when it was 26. During the period from May 17 to May 28, the respiration ranged from 10 to 17, with the exception of May 27, when it was 70. The day before death, May 29, it rose to 32. During the two periods there was also a difference in temperature. From April 26 to May 14, the temperature ranged from 102.4° to 103.3° F. From May 17 to May 29, the temperature was lower, ranging from 100.8° to 102°, except on May 27, when it rose to its maximum of 103.9°.

May 30, sheep No. 354 was found dead. Post-mortem examination showed a large cœnurus in the median part of the brain, extending into both lateral ventricles and visible superficially on both cerebral lobes, but especially on the right lobe. The skull was thinned on both sides and perforated on the right side. The cœnurus, which was ruptured in removal, proved to be alive, the cyst membranes moving freely and the heads being of normal size and development.

A third experiment was undertaken during the course of the test with No. 354, the third subject being sheep No. 344. This sheep had been fed fravid proglottids of *Tænis cœnurus* on November 10, 1908, on January 12, 1909, and on February 17. April 24 the attendant reported that No. 344 was acting queerly

and, among other things, running into the fence. April 26 it was reported to be carrying the head in an unnatural position. April 28 I examined it and found that it had lost its former vivacity and energy. It walked instead of running and came up to me twice as if for aid. April 30 there was no apparent change in condition. May 17 the sheep started circling to the right. May 19 it circled badly and staggered in walking.

This sheep now showing distinct symptoms of gid, treatment with ethereal extract of male fern was begun May 20, the dose being the same as that for No. 354, *i. e.*, 5 c. c. This dose was administered daily until May 29, with the exception of Sunday, May 23. The total amount given was 45 c.c. At no time was any improvement evident. There was no abatement of symptoms; the respiration was for four days as low as 14 to 26, the other five days it was 110 to 200; the temperature ranged from 102.7° to 103.8°. Treatment was finally discontinued on May 30. On June 2 the sheep was down and unable to rise. It was reported to have had convulsions in the afternoon, and the morning of June 3 it was found dead.

Post-mortem examination of the brain showed it to be full of fluid. Some yellowish necrotic areas were present in two or three places on the brain. The heart showed on the surface and in the muscles what were probably aborted cœnuri. The brain was removed with great care, but in one place the meninges were slightly punctured and a fluid started to run. This was collected in a test tube and later examined. A small cœnurus with two heads on it was found, but though carefully looked for, no cœnurus was discovered which could be related in size to the large amount of fluid which came from the puncture. An examination of the walls of the ventricles showed them covered with a slimy coat, a thing not usual in a simple cœnurus infection, and the fluid collected was not the clear cœnurus fluid, but a turbid cerebro-spinal fluid which on later examination proved to be full of leucocytes and cell débris. The condition in the brain was, accordingly, one of ventricular dilatation with serous exudate, probably subsequent to the cœnurus infection. This would not be an altogether rare sequel

according to Mueller (1877). The day after the post mortem the cœnurus cyst was found with one of the two heads evaginated, indicating that it was still alive when collected.

Clearly, the treatment of gid with male fern was not a success in the above cases. The first experiment with sheep No. 355 was, of course, inconclusive. The cœnurus was certainly very much alive, but the use of the less soluble male fern powder for a brief period of three days did not constitute a fair test of De Renzi's method. He had treated his patients with the ethereal extract for periods of one year, 8 days, 20 days, and 6 days.

The third experiment with No. 344 is more to the point. Inasmuch as the male fern had the additional task of combating a pathological condition of the cerebro-spinal fluid as well as killing the parasite, it was perhaps not a fair test of its ability to kill the parasite. At the same time, a remedy which fails in those cases where certain occasional sequelæ are involved is to that extent an unsatisfactory remedy anyway. The reasonable conclusion from the fact that nine consecutive treatments—more than two of De Renzi's patients received—did not kill the parasite is that the male fern was ineffective.

The second experiment with No. 354 was a still better test. The sheep received 27 doses, each dose being the minimum single tæniafuge dose for sheep. The treatment was prolonged over a period greater than those in three of De Renzi's cases. It is impossible to compare the amounts administered, as De Renzi fails to mention the size of the doses which he used. It would seem, however, that the drug was administered in adequate quantity to demonstrate any effective action if such existed. It is clear, also, that the failure to affect the parasite was complete in this case, and this, together with the evident ineffectiveness in the case of No. 344, compels us to agree with Zürn (1882), who after 24 years of attempts to find a treatment for gid says that successful medication of gid is impossible, and cautions against the administration of poisons, which in his opinion results in nothing but a waste of time and money. It may be stated that

the potency of the male fern used in the last two cases was demonstrated by its successful use on a dog as a tæniafuge.

It is evident that one experiment with negative results or even three such, do not overthrow four experiments with positive results. It should be noted, however, that three experiments where post-mortem examination has shown the failure of a new and, on the face of it, not altogether reasonable mode of treatment, are sufficient to compel a close examination of the circumstances in the four where the treatment is claimed to have effected a cure. And in the absence of operative or post-mortem examination of De Renzi's patients, there is reasonable ground for suspecting an eror of diagnosis, and I think I may safely urge the possibility of this in at least two and perhaps all of De Renzi's cases.

In the first case the patient had occasion to eat badly cooked pork and uncooked sausage; had an infection with *Tænia solium* five years previous; had attacks of convulsions and insensibility three years later and on treatment with a vermifuge had passed a tapeworm with the head. Two months later the patient had stronger convulsions, dizziness and shortness of breath on slight exertion. About this time growths appeared on the temples and the sterno-cleido-mastoideus. Five months later the patient had three cramp-like attacks in one day, followed by great exhaustion. At this time the patient came to De Renzi, who found small swellings over the entire body and great nervous depression. On the history given here he diagnosed cysticercus of the brain and skin. After a year's ambulant treatment with male fern, the nervous trouble had disappeared, so had the swellings with the exception of one over the left temple, and this was removed by operation and showed the presence of a cysticercus. The eosinophilia present at the beginning of the treatment had disappeared.

To my mind the history of diet habits liable to lead to tapeworm infection, the actual infection with *Tænia solium,* the relief after eliminating one of these parasites, the recurrence of symptoms in two months, the nature of the nervous symptoms, all of

which have been reported by various authors among symptoms occurring in cases of infection with intestinal tapeworm (see Ransom, 1904), the relief following the administration of male fern—a classic tæniafuge, all point to a case of infection with intestinal tapeworm relieved by administration of male fern. The coincident appearance of swellings on the skin, one of which —and this, be it noted, is the one which persists under treatment—proves to be a cysticercus, is not an adequate basis for assuming the presence of cerebral cysticerci to account for symptoms that can be more readily accounted for otherwise in view of the history of the case. Since this was a case of ambulant treatment for a condition diagnosed as cerebral and cutaneous cysticercosis, it is unlikely that measures were taken to note whether tapeworms were passed, and as such measures are not specified as taken, it may be assumed that they were not. Whether the swellings of the skin were cysticerci or not is immaterial. They may not have been; and had they been, it is more likely that their disappearance was due to a natural degeneration than to a poisoning by male fern: the burden of proof must lie with the advocate of the contrary theory, as spontaneous degeneration is a well established fact, while medical treatment of somatic tæniasis has little standing and less achievement to its credit at present.

The second patient, a woman, had an infection with *Tænia solium* three years before. For two years previous to treatment she had suffered from dizziness, headache, weak memory, polyuria and weakness. A swelling over the manubrium sterni showed all the characteristics of a cysticercus. After a week's treatment the nervous symptoms had disappeared and the swelling was reduced to one-third its original volume. A microscopic examination of the swelling was made, but De Renzi states that in this examination nothing of special importance was noted. May we infer from this last statement that the growth was not a cysticercus? Here, again, the history of infection with *Tænia solium,* nervous disturbance, relief with male fern and no statement as to any fecal examination points to a case of relief from intestinal tapeworm infection.

In De Renzi's third case there was a history of increasing pain in the hypochondrium for 20 months, no fever or emaciation, increase in the area of liver dullness, eosinophilia present, urine normal. The case was diagnosed as hepatic echinococcosis, and all symptoms disappeared under treatment in 20 days. The possibility of this being a case of intestinal tæniasis with accompanying functional disturbances is largely eliminated by the fact that fecal examination did not show parasites or their eggs. In this case, even assuming that there had been no error of diagnosis, it would seem more likely that the disappearance of symptoms was due to unrecognized causes rather than that male fern administered by mouth for 20 days had in some form penetrated the exceedingly tough capsule of the echinococcus, killed the parasite and permitted the reduction of the enlarged liver.

The fourth patient was a woman who had suffered for a year with a pain in the thorax and often coughed blood. In the absence of tubercular symptoms and because the patient coughed up membranes, "Häutchen," a diagnosis of lung echinococcus was made by De Renzi and confirmed by two associates. In the brief period of 6 days she was cured by male fern. In this as in the third case, granting the accuracy of the diagnosis, it is as fair to consider that the amelioration in symptoms was due to unknown causes as it is to assume an almost miraculous effect from a few doses of male fern.

A more definite connection between the treatment and recovery than De Renzi has shown in his cases is necessary as proof of the efficiency of male fern as a remedy for somatic tæniasis, more especially since it has been found ineffective in three cases in which it was tried as a remedy for gid.

Furthermore, as already alluded to, there are, on theoretical grounds, very serious objections to believing that a substance like male fern could get into the blood in such form that it would act selectively and effectively on parasites like echinococcus, which not only have a very dense laminated wall, but are also encapsuled, and *Cysticercus cellulosæ*, which have a thicker wall than *Cœnurus cerebralis* and which in cutaneous situations would

be likewise encapsuled, and that it could have this effect in the short space of 6, 8, or 20 days. It is especially unlikely that this should be true and yet that this same substance administered 9 and 27 days should fail to affect a parasite like *Cœnurus cerebralis* which has a very thin membrane, is not encapsuled, and is bathed by the cerebro-spinal fluid to which such a remedy should have easy access.

Finally the status of the male fern treatment of somatic tæniasis may be summarized as follows:

1. In practice it has been tried in four human cases and claimed to have been successful, and in three cases with sheep in none of which it was successful.

2. Of the four human cases the diagnosis, except as regards one cutaneous cysticercus which persisted in spite of treatment, was not confirmed by surgical or post-mortem examination.

3. Of these four cases the diagnosis in the case of two is obviously open to suspicion of error as far as the records show.

4. Of the remaining two cases, even granting the correctness of the diagnosis, the connection between the disease, the teatment and the cure is not scientifically demonstrated, as it should be in a case where the treatment is not on the face of it plausible.

5. Of the three cases of sheep treated by this method, the diagnosis of the disease and the failure of male fern as a remedy was confirmed in all by post-mortem examination.

6. At least one of the three sheep received a very fair and adequate test of the remedy, and the total failure of the remedy in this case is in accordance with the supposition that in the human cases reported by De Renzi the improvement in the condition of the patients was due to some other cause than the assumed action of male fern upon encysted larval cestodes.

Works Cited.

Mueller, 1877. Zur Drehkrankheit der Schafe. <Ztschr. f. Vet.-Wissensch., Berl., v. 5 (2), Feb., pp. 65-82.

Ransom, Brayton Howard, 1904. An account of the tapeworms of the genus *Hymenolepis* parasitic in man. Including

reports of several new cases of the dwarf tapeworm (*H. nana*) in the United States <Bull. (18), Hyg. Lab., Pub. Health & Mar.-Hosp. Serv., U. S., Wash., 138 pp., 130 figs.

De Renzi, 1908. Behandlung des *Cysticercus* und *Echinococcus* mit Extract filicis mar. æther <Berl. klin. Wchnschr., v. 45 (50), 14 Dec., pp. 2216-2217.

De Renzi, 1909. L'extrait éthéré de fougère mâle dans le traitement de la cysticercose cérébrale et de l'échinococcose hépatique. [Abstract of 1908, by Railliet] <Rec. de méd. vét., Par., v. 86 (5), 15 mars, p. 185.

Zürn, Friedrich Anton, 1882. Die tierischen Parasiten auf und in dem Körper unserer Haussäugetiere, sowie die durch erstere veranlassten Krankheiten, deren Behandlung und Verhütung. 2. verbesserte und vermehrte Auflage. xvi. + 316 pp., 4 pls. 8°. Weimar.

A CHAIR of veterinary science has been added to the Sydney University, Sydney, Australia, whose course of instruction leads to the degrees of Licentiate in Veterinary Science (L.V.Sc.) and Bachelor of Veterinary Science (B.V.Sc.).

IN June last Health Commissioner Darlington invited all of the 40,000 dairymen who ship milk to New York city to send in an essay on "How Clean and Wholesome Milk May Be Produced at the Least Cost for the New York Market," and James Speyer and Archer M. Huntington promised to award a cow valued at $200 to each of the writers of the two best essays.

More than two thousand essays were received, and they were judged solely upon the ideas contained in them.

First prize was awarded to J. N. Allen, Union, N. Y., and the second prize to Raymond W. Sponenbergh, Fulton, N. Y., and just as soon as they inform the Health Department of the breed of cow that they desire the cows will be shipped to them.

"Some of the competitors," said the Health Commissioner, "made some funny remarks. For instance, one man writes:

"'The stable should be cleaned twice daily and drawn into the field.' Another said: 'Milkers should milk cows quietly and rapidly, strain it and then sit in cold running water for at least an hour.'" (*New York Herald*).

TYPES OF HORSES.*

By F. C. Grenside, V.S., New York, N. Y.

An essential qualification of one who lays claim to being an expert horseman in the sense of possessing some knowledge of horse lore, is familiarity with type.

Type as applied to horses may be defined as being the stamp, model or pattern of a horse which best suits him for certain requirements or purposes. A horseman that has knowledge of some scope of this subject would generally be able to state upon looking a horse over what purpose he is best suited for. This he would determine by his height, substance, conformation, contour, finish, quality, etc.

The knowledge of type is often of practical importance in the marketing of horses, for if one knows what one's horse is best suited for, he can be educated in the right direction. The owner may also know whom to apply to as a likely customer.

In the show ring, when one is acting in the capacity of judge, a knowledge of type is indispensable in many cases. Ideal types, however, cannot often be found, and we have to be satisfied with an approximation to a type.

For practical purposes, a certain amount of variation is admissible in horses that answer the same purpose well, so that we must not lay down rules that are too hard and fast, although we recognize at the same time that these variations have their limitations.

Types of horses are very numerous and are the result of the very large field of usefulness which equines cover.

The American road horse or roadster is possibly the most widely diffused of any horse largely used for a special purpose on this continent. It must be admitted, however, that the type varies very much in horses used as roadsters with the lightest possible harness and vehicles.

* Presented to the New York State Veterinary Medical Society, Ithaca, August, 1909.

Although there is this great variation in the pattern of horses used for road work, there is still an ideal type recognized as being nearest perfection for this purpose. In the show ring conformity to this type, within certain limits, places a candidate at an advantage over other competitors. The ideal roadster should weigh from nine fity to ten hundred, stand about fifteen two, with a tendency to lengthiness, an absence of beefiness, an abundance of quality and the higher degree of finish the better; all of which attributes give him gracefulness. He does not need a pound more weight or substance than enough to prevent weediness, for it would be an unnecessary incumbrance and would increase concussion. He is intended to cover ground with the least possible concussion and friction.

Quality is of much importance in giving tough and dense tissue, to stand wear and tear, in fast and long continued travel, which is the roadster's particular avocation.

For practical purposes one has to be guided by circumstances, such as the character of the roads and weight to be drawn, in selecting a horse of proper size and substance for one's particular requirements, but that does not prevent the recognition of an ideal type for favorable conditions such as good roads and lightest possible vehicles and harness.

The terms carriage or coach horse are used in many parts of this country to indicate the class of horses suitable to draw the heavier kinds of conveyances. In the East they are usually referred to as heavy harness horses in contradistinction to road horses. The former are used with a heavier kind of harness, while the latter carry the lightest possible road harness. Some horses that are classed as heavy harness horses are no heavier than road horses, but are used with a heavier harness, hence the distinction of heavy harness horses.

The term heavy harness horses include a number of types which are used for a variety of vehicles and purposes with heavy harness, and range all the way from a heavy landau or barouche to a runabout horse.

Runabout horses are considerably used in the East in this country and are no heavier than road horses; in fact, some road horses that happen to have style and action make the highest class runabout horses, for a measure of speed is indispensable in a good one. A light harness of the heavy pattern is used, being either brass or silver mounted, and the horse is docked, with mane and tail trimmed.

Runabout turnouts really serve the same purpose as road turnouts, but more style is demanded for the former. Nine-fifty is about the ideal weight, fifteen-one the height, and a horse should have particularly good manners, with trappy, but not excessive action. In other words, he should be a handy, quick-moving, prompt horse, with style and good manners.

The smallest type of heavy horse being the runabout horse, the other extreme is the one used for landau purposes. A landau is so named from the town in Germany in which it was first made. It is a long, heavy vehicle with seating capacity of four, with two men on the box. The top is so arranged that it forms a complete enclosure when up, but it can be divided in the centre, the back portion being thrown back and the front portion forward, so that it can be made entirely open. The large two-horse cabs one sees in towns are practically the same thing, and are often called carriages or coaches. For such vehicles, usually in the city good sized horses are demanded that stand from sixteen to sixteen-two and weigh close to twelve hundred pounds. In addition to the size and weight given a landau horse should be rangy. Horses with a tendency to shortness do not look well in such a vehicle. The C spring landaus are very large and require good big horses to look imposing in them and carry the heavy harness which is used. The more quality, style, action and finish they have, the better and the more high-class they are, but it is difficult to get much quality in large horses with the substance demanded in them for this kind of work. Dark solid colors are much preferred for this purpose.

Horses suitable for landaus are of the type generally used as wheelers for four-in-hand teams, for either park or road pur-

poses. Wheelers for park teams need more style, action and finish than those for road fours, and should be solid colors. Some coaching men prefer wheelers not much over fifteen-three and don't care so much for the rangy type. Road wheelers may be of any color, and are often much preferred of odd colors as skewbald, piebald, grey, buckskin, cream, etc. Their essential qualities are strength, stamina and activity, and a fair amount of speed makes them more salable and valuable.

Another closed-in vehicle is the brougham, named after the original designer, Lord Brougham. Its top is stationary and cannot be turned down. It is a vehicle intended for night use and inclement weather. The body is close to the ground and it is easy to get in or out of. It is used with either one or two horses. There are small, medium-sized and large broughams, and are rather heavy vehicles.

Single brougham horses vary in size from fifteen-two and a half to sixteen hands and should be short-legged and deep-bodied, with plenty of timber, a good deal of substance, smoothness of contour, and be upheaded and stylish, and the more action they have the higher price they bring.

Brougham horses for pair use need not stand so high or have so much substance, but should be of the same tightly-built stamp. They should not be as rangy as landau horses and their chief characteristic should be what is sometimes called cobbiness.

Horses used for opera busses, which are closed-in vehicles holding half a dozen people inside, might be described as a compromise in type between the cobbily-built brougham horse and rangy landau horse.

The victoria horse is a more lightly-built one than the brougham horse, and an essential part in his make-up is quality, and he should be well-finished in order to be high-class.

The victoria is a full dress vehicle used for pleasure purposes, and is more particularly for ladies' use for calling, driving in fine weather, for pleasure, etc. It will only seat two occupants besides a coachman and footman and has a cover over the back seat to be used in case of emergency, but is otherwise always turned back.

It is a vehicle that varies in size very much. The miniature victoria being small and light and having room for only one man on the box is drawn by a single fifteen-hand horse, while the large C spring victoria needs a pair of fifteen-three horses of solid color, the most popular being seal brown. Most of the vehicles called victorias are really cabriolets, the distinction being that the coachman's seat has a skeleton support and there is no dashboard, only a foot board in a victoria, while in a cabriolet there is a box seat and dash board.

Horses with quality and finish suitable for victorias are of the types used for leaders for tandems and four-in-hands for park use.

Ladies' phaetons in which ladies drive themselves are very much like victorias, but there is no seat for a coachman, the footman occupying a seat called a rumble, behind. It is a very stylish vehicle and when well-horsed makes a most imposing turn-out. They are used with either one or two horses. When used with one horse he should stand from fifteen-one to fifteen-two, with a pretty fair amount of substance and all the finish and quality possible. Quietness of color is an important desideratum and style and good manners indispensable. Horses suitable for pair use in a lady's phaeton, and geldings are preferred, should stand from about fifteen to fifteen-one and weigh from nine-fifty to ten hundred.

Station wagon horses should be from fifteen-two to three, and weigh about eleven hundred. They should be rugged, wiry horses with some speed and good manners, but finish and quality are not indispensable. Gig horses vary in size, but the ideal is about fifteen-two, weight about ten-fifty, finish and quality count considerably, but are hardly so important as speed and action.

Saddle horses vary very much in size and substance. They are classed as light, medium, and heavy weight according to their ability to carry weight, and vary in size from fourteen-three up. Those fourteen-three and under are classed as ponies. A good saddle horse must have elasticity of movement, and quality is an important desideratum.

The withers should have moderate prominence, and be clean-cut in order to act as a stay in preventing the saddle from rolling. This is particularly important in a lady's saddle horse, when a side saddle is used, as there is a greater tendency for the saddle to shift to the side upon which the rider sits.

A good saddle horse should not be too thick through the shoulders, neither should the shoulders be beefy or loaded. The blade bones should have moderate length and obliquity in order to contribute to elasticity of movement. The tout en semble should be something of an approximation to the configuration of a thoroughbred, as well as to his quality in order to be high-class. In fact we mingle sufficient cold blood with that of the thoroughbred to endeavor to get more style, action, finish and substance, together with a less nervous temperament, but still conserve his elasticity and quality as much as possible.

A distinction is made between horses used for park use in the saddle, and horses that are used for general utility under saddle. The park hack should have more style and dash than the ordinary saddle horse. He should carry his head and tail up and have a considerable amount of action at both ends, and his contour and substance may partake a little more of the harness type than the latter.

The combination ride and drive horse is an exceedingly popular one with people of moderate means in this country, and there is a large market for them at fair prices. The highest class combination horse is one that conforms to the saddle horse in type and has the other essential attributes of a good saddle horse, such as pleasant paces, manners, etc., but also shows good action, some speed and stylish carriage in harness.

The hunter conforms to the type of the thoroughbred, but in him less style, action and finish are demanded than in the saddle horse. His make-up should be conducive to power, activity and stamina. Some hunting men prefer the thoroughbred to a horse with any cold blood whatever in him, but a good deal depends upon the country they hunt over. If the jumps are far apart, speed is an important attribute, and the thoroughbred often fills the bill best, particularly with a good horseman.

NIGHT INSTRUCTION.*

By Albert T. Kinsley, M.Sc., D.V.S., Kansas City, Mo.

This subject has been extensively discussed during the last year or two by various veterinary educators as well as by the officials of the U. S. Department of Agriculture.

Night instruction is interpreted by the writer to mean instruction given after 6 p. m. or 7 p. m., although in a broader sense night signifies darkness, and accepting this interpretation night instruction would be any instruction before daylight or after dark.

The Department of Agriculture has outlined a course for veterinary colleges in Circular 133, consisting of 3,000 hours, exclusive of final examinations. About 1,600 hours of the course is devoted to laboratory subjects and clinic, and 1,400 hours to recitations or lectures. The course of study, adopted by those veterinary colleges, having a three-year course, in compliance with the recommendations of the Department of Agriculture, is such that many class hours are required each day. In colleges having the minimum length of term (150 days, exclusive of final examinations) each student has 3.5 hours' laboratory and clinic, and 3.1 hours recitation or lecture each day for each college session, *i. e.*, he has practically 7 hours in class each day. The students in colleges having 7 months' session (168 days, exclusive of final examinations) have 3.2 hours' laboratory and clinic, and 2.8 hours' recitation or lecture each day of the three college sessions. Students in colleges having 190 days actual class work have 2.8 hours' laboratory and clinic, and 2.5 hours' recitation or lecture each day for the entire course, or an average of 5.3 hours per day in class. The colleges having the longer sessions are state institutions and the course of study in these institutions contain several accessory subjects and the actual class hours per student per

*Presented at the Meeting of the Association of College Faculties and Examining Boards, Chicago, Sept. 6, 1909.

day is about the same as in the purely veterinary colleges having from 6½ to 8 months' sessions. According to class schedules received from the various veterinary colleges, the number of hours per day for each student varies from 5 to 10 or from 30 to 60 per week.

The large number of students in attendance at some of the veterinary colleges necessitates the division of classes into sections for the most effectual laboratory instruction. The division of classes into sections requires more laboratories and more instructors. The expansion of private veterinary colleges is limited as their source of revenue is tuition from the students in attendance. The revenues of some state veterinary colleges is even more limited than in the private colleges. The limitation in the erection of more laboratories with the necessary equipment and the employment of more instructors, has caused some institutions to select the alternative of having more laboratory periods each day. Thus the microscopic, chemic and pharmic laboratories of the Kansas City Veterinary College were occupied 6 hours per day, 6 days per week during the session 1908-9. The division of classes into sections requiring 4 to 6 hours of instruction each day is an advantage because it enables the management to employ specialists for each separate branch, a point that is of considerable importance.

Daylight is preferable for laboratory exercises, including dissection and clinics. On the other hand, there is no more effort required on the part of the student to attend recitations or lectures after 6 p. m. or after 7 p. m. than there is required to attend like day classes. The veterinary students have so many class hours that their time is practically all occupied, and those students who have classes during the day must prepare their lessons at night, while those students having night classes prepare their lessons during the day. The daylight study is certainly far superior to night study from the standpoint of health and receptiveness.

The majority of veterinary colleges are located in cities. A large percentage of veterinary students are from rural districts

where immorality is at a minimum. Night instruction, especially given to students who have had 2 to 4 hours' laboratory exercises through the day aside from 2 to 4 hours' preparation, keeps the students occupied at the time when men are most apt to drift to pernicious indiscretions. Adele Marie Shaw, in Vol. IX. of "World's Work," says in writing of the Chicago evening classes for boys that the evening school is worth far more than it costs and that crime increases in the neighborhood as soon as evening classes are closed. Veterinary students are as susceptible to the formation of bad habits as any other humans.

The ultimate purpose of all educational institutions should be the cultivating and training of the people. The veterinary colleges should endeavor to educate all worthy men desirous of becoming veterinarians. It is possible for men in good health to complete the adopted veterinary course, and at the same time earn sufficient to pay a part or even all of their expenses. A course in which a part of the lectures are given at night favors this class of students and from observation it has been found that those men who earned a part of their expenses while in college are almost without exception successful and many of them are now either the leading practitioners or they are holding the highest official veterinary positions. Many of the world's most noted scientists and professional men, aside from veterinarians, earned sufficient by doing various kinds of work to defray their expenses while in college.

Night instruction is becoming more and more popular each year. Thus the educational department of the Y. M. C. A. conducted classes in the following subjects: Commerce and Business, Social Science, Industry and Technology, Mechanics, Building Trades, Languages, Agriculture and Rural Science, with a total enrollment in 1907 of 43,000 men and boys. The Franklin Union, a night school in Boston, endowed by Benjamin Franklin and Andrew Carnegie, was dedicated September 25, 1908; it is an industrial institution and a great many young men attend it that previously spent their evenings at cheap shows and various other amusements.

The following excerpts are indicative of the success of evening instruction:

"The evening schools, elementary, high and drawing, have had a succesful year" (28th Annual Report of the Superintendent of Public Schools of Boston, Mass., 1907).

"Evening schools were conducted in the two school buildings, 7 p. m. to 9 p. m. five days per week beginning the second Monday in November and terminating March 23d. Number enrolled 152, average attendance 71."—(Annual Report Public Schools, Columbus, Ohio, 1907.)

"Rochester established evening schools in 1900 in compliance with the state law that required certain children between 14 and 16 years of age to attend school at night if it is not possible to attend day school. An evening school was established in 1902. 5,791 students were enrolled in the seven elementary and high schools in 1907."—(57th Report of Board of Education, Rochester 1905-6-7.)

"Night school opened October 9, 1905, with an enrollment of 205 and with proper selection of teachers it will be a success."—(Annual Report of Public Schools, City of Houston, Texas, 1905-6.)

The Philadelphia school system is regulated by a law which requires a special committee to be assigned the supervision of elementary night schools and specifying that the committee on high schools supervise the night high school. The law further provides that night schools be conducted Monday, Tuesday and Wednesday evenings from 7.30 p. m. to 9.30 p. m. Definite courses have been provided and many tradesmen have taken advantage of the night schools and have materially increased their usefulness to their employers as well as increasing their earning capacity. There was 67 per cent. of attendance of those enrolled in 1907 against 52 per cent. in 1906. This is a high average percentage attendance for the average attendance in the United States public schools is only 72 per cent. of the enrollment. In the words of the Superintendent of City Schools of Philadelphia, "They are genuine schools doing in a quiet way a mighty good for the

city."—(89th Annual Report Board of Education, First School District of Pennsylvania.)

"Evening school was established in Chicago in 1856 with an enrollment of 60. In 1859 the enrollment reached 150. The course includes sewing, cooking, manual training, chemistry, physics, French, Spanish, German, etc. In 1906-7, 17,295 students were enrolled; the average attendance was 9,790."—(52d and 53d Annual Reports Board of Education, City of Chicago, 1905-6-7.)

"16,160 students were enrolled in the ten evening high schools of New York City in 1904, and 72,622 students were enrolled in the 65 elementary evening schools."—(Sixth Annual Report of City Superintendent of Schools, New York City, 1904.)

During the year 1908 the Y. M. C. A. instructed 44,591 students in evening classes. According to the 1906 Report of the U. S. Commission of Education, 203 cities maintain evening schools, and in these cities there are 1,054 separate schools with a total enrollment of 314,604 students and an average attendance of 128,955. Although foreigners constitute a large percentage of the night students and the subject is primary English this is subsidiary to the general purpose of giving an opportunity to ambitious adult students to improve their condition in life.

After fourteen years' experience as a student and a teacher in two different institutions, one of which conducted all classes during the day, and the other conducted some classes in the evening, the writer is forced to conclude that evening instruction is not injurious to the health of the student, and the student will obtain an equal amount of knowledge from the same instructor in evening and in day classes. Night instruction is also of value in that it occupies the student's time when immorality is at its height.

If night instruction is so universally successful in such varied subjects as medicine, law, chemistry, mechanics, architecture, agriculture, domestic science, etc., in practically all large cities of

the United States and in foreign countries, why should the teaching of Veterinary Science in evening classes be condemned?

The members of this organization will concede that the students entering the various veterinary colleges are of nearly equal intelligence. There are some variations in entrance requirements in the different colleges, however, and again you are aware of the fact that the efficiency of the veterinary graduates is now tested by the State Examining Boards or by the U. S. Civil Service Commission, and if we will peruse the list of successful candidates we will not find just grounds for condemning night instruction.

DR. WM. V. LUSK, Veterinarian, 2d U. S. Cavalry, left Fort Des Moines, Ia., November 28th, for the Island of Sulu.

THINK of it—two Massachusetts men are reported fined $50 each for filing the teeth of their own horses. They were found guilty of "practicing medicine without a license."—(*Rural New Yorker*, August 21, 1909.)

WHEN?—A blue-jacket ashore at Tient-Tsin happened to see a Chinaman placing a dish of rice on a grave.

"When do you expect him to come out of his hole to eat that, Li?" asked the sailor.

The Celestial showed his teeth in a diabolical grin and replied: "Same time your dam fren' come out his hole smelly flowers you fellows put."

THE following from William Thompson, M. D. C., Veterinary Inspector, B. A. I., as to how to shake a thermometer down: The following method will no doubt be appreciated by veterinarians engaged in making the tuberculin tests: Instead of shaking your arm off in the accustomed way of shaking down the mercury, try taking hold of the string between the forefinger and thumb about 1½-2 inches from the end attached to the eyelet of the thermometer and give the thermometer a few rapid whirls at right angles to the arm. A mere twist of the wrist and forearm suffices to send the column of mercury out of sight. Explanation: Application of centrifugal force. No, the method is not patented.

MATRICULATION REQUIREMENTS FOR VETERINARY COLLEGES.*

By George H. Glover, M.S., D.V.M., Fort Collins, Colo.

The subject of educational qualifications for matriculation at the veterinary colleges of America and the urgent necessity for fixing a uniform standard for the same, is, perhaps, the most important part of the work that the associated faculties have before them at this time.

The basis of classification of veterinary colleges by the United States Department of Agriculture as "A," "B," and "C," and by the American Veterinary Medical Association as "recognized" and "not recognized," is open to criticism because of lack of uniformity in educational requirements for admission.

The classification is made in the first instance primarily upon the faithfulness and uniformity with which the subjects are taught according to the curriculum furnished by the United States Department of Agriculture. A few of our schools are giving this entire course of study in eighteen to twenty months of actual attendance and taking students in some instances, with scarcely a seventh-grade attainment, while other colleges are taking from twenty-seven to thirty-six months to give the same course and beginning with those students only who have from four to six years more of training than in the other instance. The one class of schools numbers its students by the hundreds, while the other is struggling along with small attendance, and their little educational barks constantly threatened with shipwreck on the rocks of high standards.

One serious objection to accepting students into our colleges upon such a low educational plane is that they are necessarily

* Presented at the meeting of the Association of College Faculties and Examining Boards, Chicago, September 6, 1909.

given the same work and must be graded on examinations along with men who have had high school training or, possibly, one to four years of collegiate course. It would seem that the scale of one hundred per cent. would have scarcely range enough to keep the inferior one above the required seventy per cent. It is obvious ly unfair in both instances because it hampers the advanced student and forces the other beyond his power of comprehension or ability to assimilate.

Those colleges that are accepting students with examinations as the one requirement have, in other respects, conditions most satisfactory. Better salaries, in some instances, are paid, and, on the average, possibly, a more experienced corp of instructors employed with * * * well equipped laboratories and every facility for training of a high order. The only handicap in such instance is the inability of the poorly equipped student to properly assimilate the heavy educational diet placed before him.

Are our veterinary colleges to split upon the rocks of matriculation standards? Are we to have two classes of veterinary colleges in America; the one aiming primarily at excellence in veterinary art, the other in veterinary science?

This get-wise-quick idea which has become a veritable craze is after all, only a reflection of the spirit of the times and is inspired by a desire to get a quick and therefore a cheap education, which shall represent so much capital and some vantage, at least, in securing a job. Education for its own sake is forgotten or does not appeal and the get-wise-quick fallacy is twin brother to the get-rich-quick mania which seems to possess the average American.

Some of our modern education has about as much relation to the culture of the mind as digging pauper graves has to the perusal of Emerson's essay on *The Over-Soul.*

The time has arrived when the American Veterinary Medical Association should make a determined stand, not only for a higher matriculation standard, but for uniformity as well. The effort to erect beautiful and enduring superstructural edifices

upon the shifting sands of unpreparedness is futile and must inevitably redound to our discredit.

The present condition threatens to become "a house divided against itself." In the glorious cause of veterinary education, may the time never come when there shall be a bitter and relentless struggle between schools of private support and schools of state support! It is to be hoped that this matter will adjust itself amicably.

I may be overestimating the importance of this, but I am sincere, and, speaking candidly, when I say that it seems to me that the matter of whether classes shall be held in daylight or after dark, whether the five or more instructors shall have graduated from one or several schools, or whether a certain subject shall be taught a certain, exact number of hours, are all insignificant when compared with the practice of matriculating incompetent students. Our pedagogic ideal is high, and our achievements little less than phenomenal, considering the material with which we sometimes have to work.

We should at all times bear in mind that we are graduating men in the science of veterinary medicine and that we are sending them out from our institutions, expecting that they will be scientists and will honor a true and noble profession. If we graduate mere artisans in veterinary lines instead of true scientists, we are perverting the functions of our schools and the degree of Doctor of Veterinary Science becomes a misnomer.

The idea of the "exclusively practical" is sweeping the country and is invading the common schools and the universities, as well as the industrial colleges. It means, in substance, the training, by actual doing, for the actualities of life in order that the recipients of such training may be self-supporting, producers and wage-earners; it is based on the assumption that preparedness to earn a living is of more moment than the qualifications of a scholar and erudite conversationalist, or, a deliver in Nature's mysteries.

For this idea, which is so popular, and which aims to raise the masses to a greater degree of efficiency and money earning

capacity, I have the fullest sympathy. It has its place, but to engraft this practical-in-education—this short cut to the heights of professionalism—thus to invade the ranks of a learned profession means a loss of dignity, prestige and usefulness. Such views and such radical departure from intellectual essentials in any profession can have but one result; in our own case it places us on the level with the tradesman who spends two or three years as an apprentice, learning to do with his hands rather than with his head. It is a mistaken idea that an education amounting to anything can be secured at a single bound. Utopia cannot be reached by a short cut. The student must go the route and must pay the price by burning midnight oil—must of necessity begin early by laying a secure foundation.

Psychologically it is contrary to experience that a mind loafing for twenty-five years in the first part of life's journey is ever able to recover what is lost and become a power in the realm of thought. Nature forbids, yet, as profesional men and scientists we are supposed to be leaders.

There is no excuse and no justification for continuing a pedagogic practice inferior to and inconsistent with all other standards for higher education.

Unit Courses in General.—In some colleges, requirements for admission are tabulated in the form adopted by the North Central Association of Colleges and Secondary Schools. Fifteen units are required for admission.

A unit course of study is defined as a course covering a school year of not less than thirty-five weeks, with four or five periods of at least forty minutes each per week. This means, of course, high school work. In some of our veterinary schools men are matriculated without a single unit of credit, having attended no high school or any other school preparing for college, yet schools with or without such entrance requirements are, alike, rated in "Class A."

Entrance Examinations.—Statistics not immediately at hand, I assume that I am not wrong when I say that at least fifty

per cent. of men knocking at the doors of veterinary colleges have not one unit of credit for admission, yet most of them are admitted upon examination. It forces itself upon a casual observer as somewhat remarkable and paradoxical that nearly all applicants should successfully pass entrance examinations, considering, at the same time, that a goodly number have never reached the eighth grade in the public schools.

The United States Department of Agriculture has done a wonderful work in the past two years. It has endeavored to elevate the standard of veterinary colleges in America and we certainly owe the department a debt of gratitude. Let the good work go on. Things that are useful and enduring do not come about by revolution, but are slowly evolved as their need is appreciated. No chain is stronger than the weakest link. The weak link in our American veterinary college education to-day is inadequacy of preparation for the work.

The time has come when it is fitting and proper, and, I believe, advisable and necessary for the American Veterinary Medical Association to take some decisive action for the betterment of these conditions. My recommendation respecting matriculation standards is that this Association and the united veterinary faculties of America take decisive action at this meeting and promulgate some plan looking to the enactment of reform in this phase of veterinary education under discussion. I recommend that after the year 1909, all veterinary colleges, aspiring to recognition by the American Veterinary Medical Association, shall require for matriculation not only an entrance examination, but positive proof of five unit credits according to the conditions tabulated and adopted by the North Central Association of Colleges and Secondary Schools. Further, I recommend that all entrance examinations be under the supervision of the associated faculties of America, that a set of uniform examination papers be prepared by a committee of this association, and that the examination papers be sent to this committee upon request for inspection and approval. I believe that some such plan as this is entirely

within the province of this Association and that the details can be perfected as the plan unfolds.

Men not having these five units of credit and who are too old to go to high school can now be accommodated in the preparatory schools of state colleges.

Veterinary education in America is too cheap. This one defect in our pedagogic regime must be corrected.

HAMBURG BELLE DIES ON TRIP TO SOUTH.—Thomasville, Ga., Nov. 11.—Cold developing into pneumonia on her trip from Cleveland to Thomasville ended the life of Hamburg Belle (2.01¼), acclaimed Lou Dillon's successor as "queen of the turf" after her great victory over Uhlan in Cleveland, August 25 last in 2.01¼ and 2.01¾.

The great mare had arrived at the Thomas County stock farm, owned by her owner, Mel Hanna of Cleveland, only a short time before her death. Exposure on the trip south, begun a week ago, was responsible for her condition. Mr. Hanna paid $50,000 for the mare.—(*New York World.*)

VETERINARY EXAMINATION AT SHOWS.—Veterinary inspection at the Glasgow Stallion Show is anathema with some owners of entire horses. That, says the Scottish Farmer, is a very good reason for insisting on veterinary examination. No doubt, vets. are fallible. No doubt they make mistakes. No doubt they cannot, no matter how keen their skill, detect the worst forms of nervous diseases in a show-yard vetting enclosure. But, allowing a wide margin for error, the fact remains that a bench of competent veterinarians will not be likely to pass a horse affected with the hereditary unsoundnesses catalogued by the Clydesdale Horse Society. It would be a great matter were immunity from these diseases among breeding horses insured by the examination of competent vets. It is idle to deny that the vetting examination at Islington, defective though it be in some particulars, has done wonders for the Shire, the Hackney, and the Thoroughbred sire. That the system of vetting may be capable of improvement, no one denies, but improvement of the method is a totally different thing from discarding the examination itself.—(*The Live Stock Journal.*)

SOME REMARKS ON VENEREAL DISEASE IN CATTLE,*

By J. G. Wills, D.V.M., Chateaugay, N. Y.

The Granular Venereal Disease of cows, as it is most commonly called in Europe, is a new malady to American veterinarians. Its existence in Europe has been known for twenty years or more where various names of Infectious Granular Vaginitis, Infectious Vaginal Catarrh and Vaginitis Verrucosa have been applied to it by European writers. German, Italian and Danish authors have described it quite fully, but its existence and description in America was not known until very recently, and Dr. W. L. Williams, in his late work on Veterinary Obstetrics is, I believe, the first author to describe it in American literature.

Its existence in this state seems to be widespread. In practically every locality so far investigated it has been found prevalent. It exists in the herd of the Vermont Experiment Station at Burlington, Vt., and has been seen by veterinarians in Pennsylvania.

The communicable nature of the malady long recognized in Europe would indicate its wide dissemination in America. Ostertag estimates that 75 per cent. to 90 per cent. of animals in an infected herd are diseased, but in the number examined, so far I have found even more than that; some herds showing practically every animal at some stage of the malady.

The first noticeable symptom in an infected animal is an inflammatory condition of the external genitals which gradually merges into a mucopurulent discharge of varying volume. This is followed by the development of the nodules or granules which constitute the most characteristic lesions and from which the disease derives its distinctive name.

The time of the appearance of the nodules or granules seems to be variable, but they are usually visible within a few days after

* Presented at the Nineteenth Annual Meeting of the New York State Veterinary Medical Society, Ithaca, August, 1909.

the inflammatory condition. These nodules are about the size of a grain of mustard seed, firm and quite transparent, resembling minute vesicles filled with water. They are quite regularly arranged in rows along the floor and walls of the vulva and parallel with that passage. These granules are easily recognizable by touch and while in the transparent stage are readily seen when the passage is held open and light thrown upon them.

As parturition approaches, or if the animal is about to abort the congested and odematous condition of the mucosa renders the granules nearly invisible to the eye, but they may often be detected by touch. This congestive appearance in the passages seems to occur at various times without evident reason, the change appearing quite suddenly. It is not uncommon to find a deeply congested and odematous subject change in 24 to 48 hours to a condition of paleness and flaccidity with the granules standing out quite prominently. The mucopurulent discharge from the parts is quite profuse in some cases, but the presence of pus mentioned by European authors I have not noticed with any regularity in cases examined thus far. The period of incubation varies. In cases where apparently healthy animals have been added to diseased herds, or have come in contact with diseased animals, inflammation has ben noticeable in 24 to 36 hours. It is probable, however, that two to five days usually elapse before most cases develop.

CAUSE.—Ostertag and Hicker have attributed the disease to a streptococcus and have described characteristics of the organism quite fully. They attempted to prove the transmissible nature of the disease, but found only bovines susceptible. Indeed Ostertag claims that his attempt to transmit the disease artificially to a bull was negative and he concluded from that that the male was not susceptible, which is not entirely in coincidence with our observations in this country. In the first herd in which the disease was recognized there had been considerable difficulty in keeping their bulls fit for breeding purposes owing to a severe inflammation of the male organ which persisted for some time and rendered the animal almost useless for service. This condition showed

itself in four consecutive animals and the bull upon the premises at the time of our visit showed these symptoms very prominently. The nodules did not seem to be present in this case, and as far as I know no such persistent transmission to the male has been noted in other herds, although I think inflammatory disturbances have usually been found. It is quite probable, however, that the severity of the inflammation in the male animal is not as great as in the female, or the disease would almost certainly have been brought to the notice of American veterinarians before this late date. Ostertag claims to have found that the artificial inoculation produces a more rapid catarrh of the vagina than when infection occurs naturally. The European authors state that the extension of the disease into the gravid uterus produces abortion, while in the non-pregnant animal nymphomania and sterility occur. In cases I have examined I have not found such to be the case with any degree of regularity; for in some instances where pronounced lesions existed and had evidently existed for some time, very little abortion had ever occurred and cattle seemed to present normal conditions with no evidences of sterility. Other herds show a considerable number of abortions, continuing for a considerable time without immunity being acquired, as we find occurring so often where the so-called contagious abortion exists.

The control of this disease is essentially largely preventative. European writers have recommended the use of disinfectants, douches, powders and suppositories. These agents, while no doubt beneficial, do not reach the organism itself, since the cocci are so deeply imbedded in the mucosa that they cannot be reached by superficial disinfecting agents. The use of many of our best disinfectants is impossible owing to their irritative nature; others because of their odor which, in the case of dairy animals would render the milk unfit for use. The use of antiseptic solutions of any considerable strength has been found absolutely impractical by Dr. Williams, but is recommended by European writers. The apparent difference in views is possibly explained by the fact that the external passages are more resistant to irritants than is the vagina, and the European authors have not stated exactly how

far into the passage the disinfectants were to be introduced. Since the disease often extends forward to the uterus and generative organs, it is necessary that any disinfectants, to be effectual, should reach these parts, and this is manifestly impossible in advanced cases. However, the constant use of disinfectants no doubt has a very beneficial effect upon the malady and in cases where it had been tried has been found to check the extent of the outbreak very materially.

It is quite evident that until this disease has been studied carefully and its true nature and economic importance carefully investigated that no very positive conclusions can be reached. The apparently wide dissemination and the fact that it may be carried, and has been no doubt so spread by animals shipped from one part of the country to another would lead us to suspect that its importance to the live stock industry of the country is very great. It is hoped that since this disease has been brought to the attention of veterinarians and stockmen that the available information will be greatly increased within a short time, and we will thus be in a position to determine more accurately what methods of control and eradication to adopt.

Dr. Henry W. Peters, Veterinarian, 14th Cavalry, U. S. A., has gone from Germansville, Pa., to Manila, P. I.

Dr. J. W. Kalkus has gone from Nebraska City, Neb., to accept the chair of pathology at the Washington State College, Spokane.

Dr. T. F. Craig, of Hampden, N. D., has purchased a large livery and sale stable in that place which he will run in connection with his practice, also using part of it as a veterinary infirmary, which will increase his facilities for caring for patients.

In a clipping from a Minneapolis paper of November 8th it was observed that more than one hundred gallons of milk from uninspected cows was poured into the sewer. "The first step," says the article, "in an unrelenting war the Minneapolis Health Department proposes to wage on dairymen who refuse to allow inspection of their herds."

PATHOLOGY AND ETIOLOGY OF EPIZOOTIC ABORTION.*

By Herbert F. Palmer, B.S., D.V.S., Chicago, Ill.

The first published record of abortion is given in Gen. xxxi., 38, but published information on epizootic abortion is comparatively modern. Flandrin in 1804 stated that the peasants were convinced of the contagious nature of abortion. In 1807 the "Complete Farmer" mentions abortion as contagious.

In the early part of the nineteenth century, there were opponents and champions of the theory of contagion. Among the former were Hurtrel d' Arboval and Youatt. Roloff and St. Cyr believed it to be due to a specific agent. Lehnert was the first to experimentally produce the disease in 1878. This was successfully repeated in 1880.

In 1885 Nocard undertook the investigation of abortion in cows. In 1886 he brought forward excellent circumstantial evidence of its contagious nature. This report gave a description of the microbe isolated by Nocard.

In 1889 Woodhead, Aitken, McFadyean and Campbell showed the contagious nature of the disease by experimentally producing it in cows and ewes. In 1897, Bang, of Denmark, published his report on the study of the etiology of epizootic abortion. He found "between the uterine mucous membrane and foetel envelope an abundant odorless exudate, a dirty yellow somewhat thin pultaceous material of a slimy somewhat lumpy character." In cover-glass preparations, he observed a very small bacterium, apparently in pure culture. He described it as a bacillus, the body of which contained one, two or three roundish or elongated granules which readily took up the stain. The bacilli varied in length, the longest being as long as the tubercle bacilli.

* Extract of Report of the Departmental Committee, appointed by the English Board of Agriculture and Fisheries, published in The Veterinary Journal.

Bang thus concluded that epizootic abortion ought to be regarded as a specific uterine catarrh determined by a definite species of bacterium. Test tubes were sown with the uterine exudate and growths appeared in a form which Bang described as typical of abortion bacilli.

In a paper read before the National Veterinary Association in 1906, Bang reported the results of his attempts to produce artificial immunity in non-pregnant animals. The results were encouraging.

THE MICROBE OF CATTLE ABORTION.—The bacilli are non-motile between 1 and 2 u. in length, staining with methylene blue or diluted carbol-fuchsin. They do not retain the stain when treated by Gram's method and they are not acid-fast. The bacilli were found in the fluids contained inside the foetal membranes, but bacilli were found in the fluid contents of the foetal stomach.

In deference to the great work of Prof. Bang it was thought appropriate to call it " Bang's Bacillus of Cattle Abortion."

In the moist state the bacillus was not destroyed at a temperature of 55° C. maintained for an hour, but two hours at the same temperature proved fatal. Its vitality was destroyed if kept ten minutes in water at 59 to 61° C.

VIRULENT MATERIAL AND ITS VEHICLES.—The contents of the infected uterus, that is to say the exudate, the foetal membranes, and the foetus are all virulent. These materials are all inoperative as long as the affected uterus remains closed. The discharge of the genital organs are virulent for a varying period. Virulent material if kept fluid and free from putrefaction remain infective for seven months, but not for a year. Natural propogation of the microbe outside of the animal body, is thought improbable. Cows which have aborted must be considered sources of infection as long as the discharges continue, and it may continue intermittently for several weeks.

METHODS OF INFECTION.—There are two ways in which the virulent material may gain access to the pregnant uterus, viz., by

the vagina and by the mouth. The mouth seems to be the natural mode of infection. The pastures and feed lots become infected from the vaginal discharges of aborting animals. The food thus contaminated is taken into the stomach, the bacilli absorbed from the intestines, and thereby gain the blood stream and are conveyed to the uterus. The method of infection through the service of the bull is looked upon as possible, but not very probable. So far it has neither been proven or disproven.

Species of Animals Which are Susceptible.—The field observations make it probable that the bovine bacillus is not responsible for abortion in mares. The bacillus of cattle abortion was not found in the membranes of the aborting ewe. We are of the opinion that bovine abortion is essentially a disease of cattle and that other species are not likely to contract the disease.

Diagnosis.—The diagnosis is made by identification of abortion bacillus in microscopical preparations made from the uterine exudate discharged immediately before and after abortion.

Abortion.—A material analagous to tuberculin was prepared and this when injected into the veins or under the skin of an affected animal causes a temperature reaction. Normal animals do not cause any appreciable rise of temperature. This may prove a valuable diagnostic agent.

Complement Test.—A method which is termed "fixation of the complement" may prove reliable for diagnosis even in its early stages. The test depends on the fact that the abortion bacillus manufacture a substance which passes into the circulating blood, in the serum of which it can be detected by a highly specific character—namely its affinity for abortion bacilli.

Natural and Acquired Immunity.—There has no evidence been produced to show that natural immunity is possessed by any animals of the bovine species.

From general inquiry, we are inclined to believe that a majority of cows acquire a serviceable degree of immunity as the

result of an attack, but a considerable proportion abort twice and a small number even three times.

IMMUNIZATION.—The most hopeful line of inquiry seemed to be the production of immunity by inoculation of large doses of pure culture. One of the great objections to the protective inoculation method is the number of operations necessary to ensure protection. But, owing to the harmlessness of large quantities of pure cultures when injected into non-pregnant animals, it seems impossible that a degree of immunity could be established by inoculating one large dose.

Field operations are already in progress on the treatment of infected herds. Such operations require a period of time and in the course of a year or two it may provide material for a special report.

THE State Board of Veterinary Medical Examiners of Colorado held their semi-annual examinations at Denver, Colo., October 26, 1909.

ALL qualified practitioners of Oklahoma will please send their names and addresses to Dr. R. A. Phillips, No. 428 West Second street, Oklahoma City, and secure copy of constitution and by-laws of the Oklahoma Veterinary Medical Association.

IN a recent edition of the *New York Herald,* in an article entitled "MORE DRAUGHT HORSES FOR NEW JERSEY," is mentioned the second importation by Veterinarian T. Earle Budd, of Orange, N. J., for his state. This importation from Scotland consisted of two hackney stallions, nine Clydesdale stallions and five Clydesdale mares. "King Ruby," one of the hackney stallions, is a son of "Ruby," sire of the sensational stallion, "Little Ruby," that won last year at the International in London and at the National in New York. The hackney is about the most useful all-round road horse extant, and his blood fused with good mares will certainly benefit the future road horses of New Jersey. It is hoped that they will breed pure hackneys as well. Draught horses are in great demand, and New Jersey will find a ready sale for her Clydesdales, and "grades" from the same. Some day perhaps Dr. Budd will contribute an article on "THE HORSE INDUSTRY OF NEW JERSEY."

REPORTS OF CASES.

ENZOOTIC ENTERITIS IN THE HORSE.*

By Dr. F. C. Wilkinson.

I will, with your kind permission, read a short paper that I translated from the *Annales de Medecine Veterinaire* some time ago. The paper is a description of "Enzootic Enteritis in the Horse, Produced by the Tænia plicata."

The pathological disturbances produced in our domestic animals by the various known entozoa being of great diversity, and the observations bearing on this point being very rare in veterinary literature, I think I am doing a service in reporting the symptoms presented by several colts affected with parasitic enteritis, which formed part of the stock at an important agricultural establishment in Brabant. A few months ago I was called in consultation by my friend, M. Derycke, for the purpose of examining a large number of colts, which presented vague symptoms of some disease, to which two of them had already succumbed. M. Derycke and the owner reported to me that some time ago, when the colts were at grass, one or two of them had shown signs of strange disturbance. The weather was very dry at the time and the grass was insufficient to feed the colts. The owner had a quantity of green clover scattered about the field; but in spite of the scantiness of the grass several of the colts showed great indifference to the clover, and some of them remained lying on the ground as if they were indifferent to everything about them. Even then the colts were losing flesh; but after a time, although no treatment was given, they regained their former condition and were supposed to be convalescent. Towards the end of the pasturing season they became poor in flesh again, and for this reason they were brought in at night as soon as the frost made its appearance. They passed the night in the stable and were let out in the morning when the frost was gone. The very second night severe diarrhea occurred in the

* Read before the Vermont Veterinary Medical Association July 27, 1909.

case of one of the colts, and the appetite became capricious; at the end of two days the patient refused all solid food. It was this colt that I had occasion to examine, and the following is the statement of the symptoms which I observed: Pulse quickened (70) and very feeble, artery soft; mucous membranes and conjunctiva very pale; aspiration quickened 36, superficial temperature per rectum very variable but never remaining high, the average being 38½ to 39. Centigrade, 95° to 100° F. The animal forces were considerably reduced, and the colt moved from side to side with indifference, swaying slightly on its hind quarters. His appetite had entirely vanished. Auscultation of the abdomen enabled me to hear rumblings of a metallic sound. The hair of the tail and posterior limbs were covered with excremental matter. The parts between thighs were excoriated and the derma exposed through the irritant action of the excreta. At short intervals the patient threw out, in an unconscious and passive manner, jets of excremental matter, completely liquid, and these jets went to a great distance. The emission was not accompanied by expulsive efforts, nor by contractions of the abdominal muscles; it may, therefore, be presumed to have been caused solely by peristaltic movements of the intestine. The matter thus ejected smelled offensive. The flank was very rigid, the abdomen contracted, the lumbar region rigid and insensible to pressure. The most important symptom of all, and one which was at once observed in all the affected animals, was the extraordinary emaciation which took place. The patients seemed actually to dry up to such an extent that at the end of seven or eight days they were reduced almost to skeletons—mere skin and bone. I must state that the establishment, of which these animals formed part, was extremely well looked after, and that the colts were in a most satisfactory condition, the skin being very sleek and soft to the touch a little while before they were taken ill. The general nature of this disease was not difficult to diagnose, but I confess that I was not prepared for the etiological factor which the post-mortem allowed me to discover. I had before me a case of enteritis essentially prostrating (adynamic) and infectious in character. The patients being young animals, my colleague and I had for a moment supposed that the trouble might be brought about by parasites but we had in view only the ascarides; we never suspected tenia. Having noted the adynamic and infectious character of the disease, we applied a treatment according to the symptoms observed. The patient received an

electuary containing nux vomica, creosote and salol; in addition to this we administered salicylate of bismuth dissolved in claret, three pint bottles a day. For drink, the colt was allowed to get as much milk as it liked, with the addition of a little boiled water; for solid food, boiled rice and a little oats. The loose stall was disinfected with creolin and thoroughly ventilated. In spite, however, of our most assiduous care and the greatest attention the emaciation went on increasing, and at the end of a few days, being quite incapable of movement, was destroyed. A post-mortem was performed immediately by M. Derycke and enabled us to observe, in addition to the symptoms of extreme anemia, slight diffuse enteritis extending over all the intestinal mucous surface; the principal disturbances were in the small intestine and the small colon. With regard to the contents of the intestines (entirely liquid), we found, in addition to a few ascarides here and there, a very large quantity of worms which I recognized as tænie plicats. These worms, which are also called Anoplocephalus plicatus by M. Railliet, are thus described by him, and the specimens sent to me correspond with his description. They are 9 to 80 centimeters in length; head thick, short, square, but slightly rounded and depressed in the direction of the two faces from 4 to 6 millimetres in breadth; cup-shaped suckers pointing forward. No neck. Rings becoming rapidly broader than the head and continuing to increase in breadth, sometimes towards the middle, sometimes towards the extremity of the chain, acquiring a maximum of 5 to 20 millimetres, 19 to 78 inches, increasing also in length to the last ring. M. Railliet adds that this parasite is seldom found in the small intestine and more seldom in the stomach of the horse. Most writers, including Neumann, Krabbe, Hering, Roll, and Zundel, agree with M. Railliet in saying that the tænia plicata is rarely in the horse and is almost inoffensive; but my experience, in the case I have described, goes to prove that the presence of this parasite may be the beginning of disorders which end only in death. I have endeavored to trace the origin of the disease which carried off the colt, and, as I suspected the water, I made further inquiries of the manager. He informed me that the fodder used in the stable had never been better than it was that year; that the grass of the meadow was of excellent quality. The colts had spent the summer season in two different meadows; one of them, which had been newly laid out, was dry; the other, an older pasture, was more humid. In the former they drank water coming from a

spring; in the latter, on the other hand, from a watering place which had been there for twenty years. The water was collected by a trench and came from meadows and drained lands, the trench receiving likewise at the time of heavy rains the overflow water from the farm. I presume, therefore, that it was from the water that the colt got the eggs of the tænia, because the adult horses, which received the same solid food as the colts, presented no symptoms of any disorder whatsoever. With regard to prophylactic treatment, I recommended, first of all, careful feeding, because it was a matter of common observation that enfeebled subjects became more easily the feeders of entozoa than do strong and hardier animals. I likewise recommended the daily administration of two ounces of absinthe to all the colts once a day in two ounces of aqua, I mean to the colts that had been pastured with the dead animals. In addition to this, care was taken to supply the colts with water from a well which had all the characteristics of good drinking water. These measures were evidently sufficient to check the development of the entozoa, as not a single colt has been ill since then on that farm.

CORNCOBS IN MARE'S BLADDER.*

By N. I. Stringer, Paxton, Ill.

The case I wish to report helps to demonstrate the brutish nature of some animals going about in human disguise.

Mr. Frank F. called my partner, Dr. Grayson, in from the road to examine a mare that was passing a small quantity of urine quite often and straining.

Dr. G. made an examination, inserting his finger in the bladder through the meatus, when he discovered a large calculus. He told the owner to bring the mare to our infirmary the next day, which he did.

Dr. G. asked me to do the operation. On inserting my finger I discovered what felt like a large calculus of considerable length and flattened on two sides with a groove in each flattened surface.

The soft, sandy surface seemed to rub off quite easily, leaving a hard body. After a little manipulating the calculus sep-

* Case reported at the Twenty-seventh Semi-annual Meeting of the Illinois State Veterinary Medical Association.

arated into two long pieces. With some difficulty I gasped one with the forceps and removed it, when, to my great surprise, I found it to be a corncob 7¼ inches in length. I then removed the other one, which was 6½ inches long. Each was covered with a coat of calcareous deposit about one-fourth of an inch thick.

The mare had not been showing any particular inconvenience only for about three weeks.

The amount of lime deposit would indicate that the cobs had been in the bladder for some time.

They must have been placed there by some fiend who knew something about the anatomy of the parts and was done, no doubt, as a fiendish prank or for a mercenary purpose. * * * *

STRANGULATION OF INTESTINE IN A HORSE.

By B. F. KAUPP, B.S., D.V.S., Pathologist, Colo. Agri. College, Veterinary Department.

A case was received at the college hospital by Dr. Kingman. The patient had the following description and history: Bay gelding, seven years old. Gaited saddle horse. Had been used regularly in roadwork. Had had colicky attacks on an average of about once a month for seven or eight months. The symptoms were rather slow developing, constant pain, rather mild, and in twenty-four to thirty-six hours apparently complete recovery. The fatal attack showed symptoms similar to those previous. In later stages there was noted profuse sweating, rolling, would stand a while, walk in a circle, then lie down again and roll. In about thirty-six hours the horse died. A careful autopsy was held. There was observed, extending from the superior part of the abdominal cavity, a pedicle. This was located about midway between the anterior and posterior mesenteric arteries. Attached to the extremity of this pedicle was a lipoma as large as an average sized orange. This pedicle was wrapped around a section of the ilium, forming a tight knot, and completely strangulating the part. Fig. 1 is a photograph of the strangulated portion. A full description accompanies the cut. Fig. 2 is a pen drawing from a study of a section of the lipoma.

FIG. 1. CASE 200.
LIPOMA CAUSING STRANGULATION OF INTESTINE.
a.—Lipoma.
b.—Pedicle of lipoma causing strangulation.
c.—Portion of intestine above strangulation.
d.—Strangulated portion showing venous congestion.

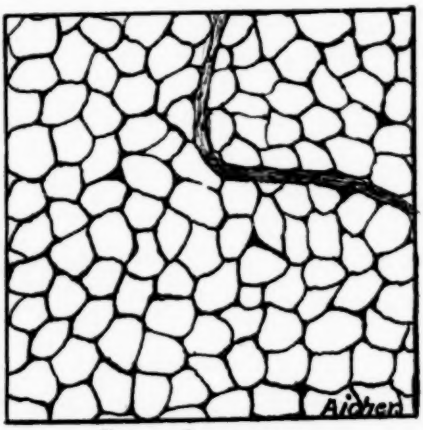

FIG. 2. CASE 200X100.
LIPOMA.—Section showing framework of adipose cells. Fat unstained.

PURPURA HÆMORRHAGICA.*

By E. A. Richardson, V.S., Goldfield, Ia.

Friday, May 15, I was called to see a small 900-pound strawberry roan horse belonging to Vest and Stevenson, town butchers, with the history of having on the previous day been kicked on the outside off metatarsal, and unable to bear weight on the leg. Examined for fracture, result negative; prescribed hot fomentations and an anodyne liniment.

Saturday, again called, with report, case much worse. Found animal suffering acute pain in kicked leg, which was badly swollen, very much reddened and oozing bloody serum. The other legs commencing to swell. Pulse 65, temperature 104° and respirations quite rapid, with a general weakness of all the legs to such an extent that I ordered him put in slings, as there seemed danger of general collapse.

The leg swellings resembled those of purpura, but no petechiæ of Schneiderian membrane, and as animal had no history of influenza, strangles, or even a cough, and had recently been kicked, my diagnosis was septicæmia; but that diagnosis did not suit me, as there was a peculiar oozing of the skin over the second hind leg during the day; but I treated it with my standby in such cases, "Lyllods Echinacea and Tr. Nux," one ounce, giving drachm every three hours.

Sunday, conditions improved, pulse 56, temperature 102 1-5°. Sunday evening, temperature normal, pulse 46.

Monday, petechiæ appeared in nostrils and developed very rapidly, accompanied by considerable bloody discharge. Added pot. iodide to treatment.

Tuesday, pulse 60, temperature 103°, appetite failing.

Wednesday the head started to swell; I left two or three 15-grain doses bichromate of potash. Before night the swelling had increased to such an extent that the whole head was involved and in shape resembled that of a hippopotamus. Pulse had risen to 80, temperature 104 4-5°, respiration so distressed that could be heard easily fifty yards away, and a bloody discharge from nostrils and mouth so profuse that the whole manger was soiled with blood.

The owners that night considered him such a filthy and helpless case that they abandoned treatment.

---

* Read at meeting of M. V. V. A., Omaha, June, 1908.

Thursday morning I found it would be impossible to administer any medicine per orum and decided on hypodermic injections of adrenalin which was administered in drachm doses every three hours; six doses in all, and, as I was too busy to devote more time to the case, let him go.

In a couple of days the swelling had subsided enough for him to be able to take liquid nourishment, and the only after treatment was bichromate of potash, 10-grain doses in the drinking water three times a day, the patient making a very nice recovery in ten days.

This, and one other case I have treated, had no history of any debilitating disease; so, what is the real cause of Purpura hæmorrhagica? Is it due to a specific infection? Also, the advantage of hypodermic medication when the swelling prevents administering medicine per orum, and the beneficial results of the adrenalin treatment; as I consider a case of purpura with a pulse of 80 a very bad case.

AZOTURIA WITH UNUSUAL COMPLICATIONS.*

By Hal C. Simpson, Denison, Ia.

April 20th was called to seen an imported Percheron stallion; upon arrival found a typical case of Azoturia; animal could rise but did not stay up long. Drew urine which was dark, thick and glassy; applied liniment over affected muscles; gave physic ball and left treatment consisting of Fl. Ext. Digitalis 2, Potassium Acetate 1, Sodium Phosphate 6, H_2O ad. 16. One every three hours. Also powders to be put on tongue every three hours, each powder consisting of Ext. Digitalis, 2; Potassium Acetate, 1; Salol, 1; Hydy. Chloridum Mite, 15 grains; Sodium Bicarbonate, 2. Returned next day; found animal improving, temperature lower, pulse and respirations slower and animal able to stand longer and eating a little. Continued same treatment excepting medicine was given every four hours.

April 23d called again, animal greatly improved. All muscles were relaxed, excepting was still in pain in the left hind leg. Palpitation of the region between external angle of slum and the

* Read at M. V. V. A. meeting, Omaha, June, 1908.

stifle; thought was more flabby than same on other side and made prognosis of possible atrophy. Continued same treatment, only ordered medicine given every six hours. Noticed prominence on hoof of this leg and inquired about it. Was informed that about two months previous he had been lame and in a few days hoof separated at top of wall and matter ran for a few days, the foot at that time being poulticed, pared out and flushed, recovery followed in a few days. On examining hoof increased arterial pulsation and fever were detected; removed shoe and made thorough examination; found evidences of foreign body penetrating near white line. Probe was passed nearly to top of hoof; an opening was made there and tract thoroughly flushed out. Tinct. Sodine injected and foot poulticed for a few days. The tract was flushed daily for some time.

After opening the foot, animal improved at once, and in a few days was going sound as far as a rapidly atrophying muscles would permit. This horse weighed 1,980 a short time before. At present the thickness of tissues between stifle and external angle of ilium does not exceed 1½ inches. For fear of possible permanent injury, animal was taken from stud for present season.

Possibly I should have discovered this foreign body earlier, but having a typical case of Azoturia I never suspected anything of the kind and particularly to the hoof on the same leg in which the disease was intensified. Is it possible the condition in hoof had anything to do with Azoturia localizing itself in the region named. This case is peculiar on account of its complication and it emphasizes the fact that we, as veterinarians, should take nothing for granted.

April 30th a young horse was led into hospital to be treated for atrophy of posterior muscles of left side. I wasn't there at time and owner reported to assistant that he was very mean and hard to lead and that he had lain down twice on the road in some six miles.

I returned shortly and above conversation was repeated to me. About this time the gelding urinated. I went into stall and discovered that urine had the characteristic appearance of azoturia. I then noticed the muscles were enlarged and very hard. Gave treatment and advised owner to leave him a few days, which he did. The animal improved to all appearances, except that the muscles did not soften up any. As he seemed all right otherwise I concluded to treat the atrophy by the injection

of tincture sodine 1 into the atrophical muscles and, just to see what the result would be, injected some into the hardened muscles. It failed to have an action towards softening then that I could see.

TREATMENT OF FISTULOUS TRACTS.*

By B. F. Riceberger, St. Charles, Ill.

Mr. President and Members at the Association:

I have been asked to read a paper at this meeting. At the time I received the invitation the thought came to me, could I prepare one that would be of any practical use to our profession? To refuse would be a blank or more than that, a stumbling block in the association.

I have chosen for my subject, fistulous withers, poll-evil and quittor, being one and the same, except as to location. Treatment the same. I have used the following for several years; action emperical:

Spanish Flies, oz. 2.
Iodine Tinct., oz. 3.
Mercurial Oint., oz. 4.
Turpentine, oz. 4.
Amber Oil, oz. 1.
Euphorbium Gum, oz. 1.
Corrosive Sublimate, drachm 3.
Adeps, oz. 8.
M. Sig., inject one drachm in sinuses at intervals of ten days.

Case No. 1, chestnut mare, February 3, 1902-April 1, 1902, was sound with no after trouble. * * * One drachm in sinuses will cause the pipe to come out in from twelve to sixteen hours, leaving a raw surface; no after treatment other than above. I secured this treatment from a layman.

I have used the above treatment on long standing cases without a single failure, bringing about a normal condition in a comparatively short time.

---

* Reported at meeting of Illinois State Veterinary Medical Association, Bloomington, July 13, 1909.

SCROTAL HERNIA.

By J. FERGUS DONNELLY, V.S., St. Johns, Newfoundland.

While attending to a very bad case of impaction of the large colon in a bay gelding, owned by one of our farmers, my attention was called to a two-year-old colt which had been castrated by another veterinary surgeon about six months previous. The owner informed me that three months after the operation he noticed a swelling which every week was getting larger, and he called in the veterinarian who had castrated the animal, but he told him that it was nothing and would go away. Upon examination of same I found it to be a scrotal hernia and advised operating at once, which he agreed to do. I had the animal sent to my infirmary and prepared for the operation.

At 11 a. m. the next day he was placed under chloroform and upon opening the scrotum, I found three feet of the intestines in it. They were contained in a peritoneal pouch, which I broke through and then returned the intestines and placed a ligature around the pouch close up to the external ring. After the colt came out of the effects of the chloroform he was placed in a good box stall and the scrotum was syringed out with a 5 per cent. solution of Zotal twice a day for six days. On the seventh day I returned the colt to the owner and gave him instructions to keep the wound clean. I visited him each day and at the end of the twelfth day he was put in a field looking in good condition and everything healed.

PROLAPSE OF THE ANUS.

By R. W. GANNETT, D.V.M., Newark, N. Y.

An aged but well-nourished bay gelding was brought to me suffering from a prolapse of the anus of ten days' standing. The prolapsed portion appeared like a large round tumor, red, painful to the touch, and bleeding, from the centre of which, by violent straining, the animal was able to pass a small amount of fæces in hard, dry balls coated with blood.

I carefully emptied the rectum and administered one ounce of aloes. The next day the tumor-like mass was ligated in three portions well forward upon the healthy rectal mucosa. It was necessary to empty the rectum daily till the ligated portion sloughed and dropped off in four days. Healing of the rectum was rapid and without treatment.

ARMY VETERINARY DEPARTMENT.

A TRAGIC DEATH IN THE ARMY VETERINARY CORPS.

It is with profound sorrow that we chronicle the death of Dr. I. M. Lawrence, Fifth U. S. Cavalry, who succumbed to generalized tuberculosis in the U. S. General Hospital, at the Presidio of San Francisco, on October 28, 1909.

The death of our young army friend is real tragic. Young, bright, full of spirit and hope for his future in the army, he lost one of his legs four years ago in the Philippines by surgical amputation necessitated by a fall with his horse. As no provision existed for his retirement, he had to choose between the alternative to either resign or prove his further ability for the service. The latter he did in undaunted spirit by procuring an artificial leg and riding his horse on marches for hundreds of miles during the last two or three years in order to "demonstrate *ad oculos,*" as he said, his physical capacity. His grit was admired by all.

By his ill luck he became "our case" in the prolonged attempts to procure favorable legislation by Congress for the retirement of disabled army veterinarians, giving us a firm basis for our claims. Now he is lost to us.

Almost too tragic to repeat were his last hours. Young as he was and tenacious of life, he realized that he was rapidly sinking. Under the stress of this condition he assigned his death claim of the six additional months' pay by the War Department to his sister; asked his nurse to baptize him, and with the prayer, "Jesus, have mercy on me!" he departed peacefully.

This last account we have from our old army colleague, Dr. Corcoran, who writes: "I did all I could for the poor boy." Anyone who knows the big heart of this nestor of our service will not doubt the truth of it, nor his ability to soothe the last days of our unfortunate young friend.

The funeral of Dr. Lawrence was held under full military honors at the National Cemetery at San Francisco.

The deaths of Drs. Hunter and Lawrence have removed from us our strongest footholds for claiming legislation for disability below the time specified in the official veterinary bills before Congress. Their cases were visible and evident. They are our martyrs. Yet, let us not despair, but remembering their offered lives, let us bravely fight on for justice that must finally come to the survivors of a good cause.

OLAF SCHWARZKOPF.

ARMY VETERINARY NOTES.

Dr. Coleman Nockolds, veterinarian, First Cavalry, has an article in the Journal of the U. S. Cavalry Association for November, 1909, on the "British Veterinary Service Compared with Our Own." It is a recital in brief of the organization and duties of the British army veterinary service, interspersed with some pertinent remarks and comparisons with our own service which are bound to keep before the minds of our army officers the subject dear to us.

THE U. S. Department of Agriculture are quarantining sheep in Colorado for lip and leg ulceration. It is claimed by the State Veterinarian and stockmen that the condition for which their sheep are being quarantined is a non-infectious condition and has been in existence in the State of Colorado for many years, and that it responds readily to treatment.

DR. GEO. H. GLOVER, of the Veterinary Department of the Colorado Agricultural College, talked on the subject of the use of the score card system and the practical side of tuberculin testing of dairy cattle at a mass meeting under the auspices of the County Medical Society at Pueblo, Colo., on Oct. 23. This meeting was called in the interest of pure milk supply.

JUST as our forms are closed for the December issue, we are in receipt of clippings from *The Ottawa Evening Journal* of November 10, 1909, and from *The Ottawa Free Press,* of the same date, from which we learn that Past President Rutherford, of the A. V. M. A., has been elected President of the Civil Service Association of Ottawa, to succeed Mr. J. A. Doyon, retired. Lack of space precludes details.

CORRESPONDENCE.

WASHINGTON, D. C., November 14, 1909.

To the Editors of the AMERICAN VETERINARY REVIEW:

DEAR SIRS—We have just been informed of the sad death of Dr. I. M. Lawrence, 5th U. S. Cavalry, at the Presidio of San Francisco, Cal. Dr. Lawrence was one of the most brilliant and lovable men in the profession. Everywhere popular, especially in his regiment.

After a very short service, he suffered the loss of a leg from an injury contracted in the line of duty, but gallantly did he ride, with this infirmity, for thousands of miles with that most excellent regiment of cavalry.

Two years ago Dr. Lawrence secured a long leave of absence and took a post-graduate course in pathology and bacteriology at the Veterinary Department of the University of Pennsylvania.

Just before joining his regiment, he underwent a serious operation at the Army General Hospital in this city for tuberculosis of the hand. This lesion apparently healed, but soon after taking station in Hawaii general symptoms became manifest and he was ordered to the Army Tuberculosis Sanitarium at Fort Bayard, N. M., but died en route. With less than ten years' service in the army, the bill prepared by the War Department would have thrown out of the service, with three months' pay, this gallant young man who could not pass the army physical examination required by this bill on account of the loss of a leg and later the development of tuberculosis contracted in the Philippines. It was this sad case which called for opposition to the Army Veterinary Bill by your legislative committee. But he has now been mustered out and gone to join that grand army of the righteous and blessed.

Inasmuch as there is now no reason to oppose this bill, steps have already been taken by the legislative committee to further the interests of army veterinary legislation during the next session of Congress which convenes in December. A general call

to the profession will probably be made next month, and we trust there will be a renewed interest taken in this matter by the profession.

The bill now before Congress is the only bill prepared by and endorsed by the War Department. It does not give actual rank, but provides for increased pay and relative rank of first lieutenant, mounted, for over ten years' service; and, what is far more important, the retirement of veterinarians for age and injuries contracted in the line of duty.

There are veterinarians now in active service who have been in the army since the Civil War, and it is but scant justice to give these old veterans a few years of peace and contentment before their final muster. Your committee sincerely hopes that no member of the profession in or out of the army will see fit to oppose this bill and deny these old brethren their just dues.

Very respectfully,

J. P. TURNER,
Chairman, Legislative Committee, A. V. M. A.

THE PRESIDIO OF SAN FRANCISCO, CAL.,

October 23, 1909.

To the Editors of the AMERICAN VETERINARY REVIEW:

GENTLEMEN—Our best, bravest and most brilliant boy was to-day placed beneath the sod in a most beautiful spot of our National Cemetery here, with all the pomp and honors of war, every branch of the service being represented. No funeral ever exceeded it in this great military station.

My boy, I. M. Lawrence (for he always called me father, and I loved him as a son), returned recently from the headquarters of his regiment, the Fifth U. S. Cavalry, Hawaiian Islands, suffering from generalized tuberculosis. He reported to the U. S. General Hospital here for observation and treatment, but too late, as all organs were fatally involved, especially the kidneys. Both of them were almost obliterated, and he suffered acutely but with manly, and afterwards Christian, fortitude. I spent much of my time with him, and when I found

all hope was gone I said to him, " My boy, don't you know all the chances are against you?" He nodded his assent. I then said, " My boy, you told me you had a sister that you love dearly; and now that the inevitable is liable to happen soon, had you not better assign everything that is due or to become due to you from the War Department?" (six months' pay after death). He answered, " I was thinking of that," and made the assignment next day.

As he continued to sink, and as he had never been baptized, his saintly nurse baptized him in the absence of a clergyman, who soon afterwards visited him.

That night he sank rapidly; and the next morning, as he was about to pass away, this same good nurse and old friend of his asked him to pray with her, to which he assented. She then prayed, " Jesus, have mercy on me," which he repeated very distinctly. She then repeated the prayer, when he said, " I said that before." She asked him to repeat it again, which he did distinctly and reverently, and in a moment after was with his Saviour.

The services at the chapel and cemetery were most impressive; and it is my intention, with the assistance of his regiment, and, I hope, college mates, to place a monument over his resting-place that will be a credit to the profession of which he was a brilliant star.

You know or heard of his earliest suffering, when he lost his leg, and was saturated with every tropical disease, yet all of which he bore bravely, returning to duty with his regiment, the members of which dearly loved him.

RICHARD B. CORCORAN.

FORT LEAVENWORTH, KAN., November 13, 1909.

To the Editors of the AMERICAN VETERINARY REVIEW:

DEAR SIRS—The time is approaching when the bill for the reorganization of the army veterinary service will be again introduced.

There is now no reason to " kill " this bill, as those in the service who were disabled, and in whose interests objections to

the passage of the Warren bill were made, have died within the year. Peace to their ashes and honor to their memory!

A word of warning to the veterinary profession, in reference to the bill about to be introduced this winter, from one who knows whereof he speaks, may be of value at this time. If any bill introduced that has the sanction of the War Department is obstructed in any way by members of the profession in or out of the army, the veterinarians of the army may, with benefit to themselves, hold their peace until such time as there is another war with its consequent increase or reorganization of the military service.

Verbum sapientis.

Yours sincerely,

GERARD E. GRIFFIN,
Veterinarian, Third Field Artillery.

A CORRECTION.—In our chronicles for November on page 148, where the second line reads "and only 11 had answered to their request," should read 110.

TO CROSS OCEAN TO CURE TOY DOG.—Regent, prize-winner and pet of Mr. and Mrs. Harold T. Creighton of Deal, is going blind despite big fees paid to New York oculists. The toy French bulldog is accordingly to be taken to Paris January 1 by his owners to submit to noted oculists of France. He cost $5,000 as a pup.—(*New York World.*)

"WEDDING HORSES."—An old-fashioned man who wanted to hire a team for the afternoon saw a nice pair of bays which he thought he would like to drive.

"Can't let you have them," said the liveryman. "They are wedding horses."

"What's that?" asked the innocent pleasure-seeker.

"Horses that won't shy at old shoes and showers of rice. Some horses seem prejudiced against matrimony. Anyhow they lose their temper if they happen to be hit by any of the good luck emblems that are fired after a bridal couple, and run away if they get half a chance. Every livery stable, however, keeps two or more horses who take a more cheerful view of the wedded state. They may be literally pelted with old shoes without resenting it. Those bays are that kind. They are slated to head a wedding procession to-night and are resting up for the job."—(*New York Sun.*)

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

CARCINOMA OF THE MAXILLARY SINUS OF THE HORSE [*J. Craig, Dublin*].—After a few weeks of illness, this aged black pony gelding presented the following symptoms: Left side of the face below the orbit much enlarged, and the bones surrounding softened. A small ulcer appeared over the upper portion of this swelling and was accompanied with discharge from the left nostril, greyish, glaring, stinking and adherent to the nostrils. The lymphatics of the left side are enlarged, not painful or hot. Examination of the mouth shows the left palate and superior maxilla softened, the four left upper molars are loose and removed easily. The finger inserted in the alveoli was met with a soft mass, obstructing the maxillary sinuses. Cut sections of the tissue were examined and found to be typical carcinoma. No treatment was attempted. The animal died after a few days. The growth was found invading the left maxillary and frontal sinuses and also the turbinated bone of that side. It extended into the nasal cavity. Grafting of portions of the original tumor on various parts of the body of the animal have given uncertain results.—(*Veter. News.*)

CASE OF RABIES IN A PUPPY [*F. E. Place*].—A strange dog had worried and bitten a two months' old puppy. About a month later he began to act strangely, rushed and snapped at his master, biting him on the bare foot. He was shut up, was willing to feed, but seemed unable to. He had distended pupils, partial blindness, partial paralysis of the jaw and hind quarters. He made repeated rushes at objects placed in his way. He was shot, and at post mortem the brain was found slightly anemic, but congested in some spots. The pharynx, larynx and bronchia were congested, stomach empty, except for half an ounce of detritus

of matting and charcoal. Kidneys and spleen congested. The case being considered as one of rabies, the owner submitted himself to Pasteur treatment.—(*Veter. Record.*)

MELANO-SARCOMA IN A MARE [*A. Peters, M. R. C. V. S.*].—Eleven or twelve-year-old gray mare, having always appeared in good health began to trot stiff behind first, and then seemed stiff also in the back and neck, principally when backed out of her stall. As she was ridden under the saddle, her condition was supposed to be due to the weight of her rider. She was then driven and after a while she grew worse. Led out to grass, she has difficulty to feed from the ground and doing so she keeps her forelegs apart. After two weeks she was unable to put her nose down to the ground and she began to stagger, like a horse with spinal meningitis. Put in slings, she grew worse, losing power in her hind legs and then she was destroyed. She had been malleined without any positive results. At the autopsy, lesions of melano-sarcoma were found. In the spleen eleven tumors of various sizes. In the liver three, each about the size of an apple. In each lung one as big as a cricket ball. Several of the dorsal and lumbar vertebrae showed melanotic deposits. The sixth rib also. The heads of the three last ribs were fractured; there were also pigmentary deposits in the mammæ. Externally the mare had no indications of melanosis except three small nodules under the tail.—(*Veter. Journal.*)

MELANOSIS OF THE PERITONEUM IN A BULLOCK [*Prof. G. H. Wooldridge, F. R. C. V. S.*].—Illustrated record of melanotic lesions found in a chestnut bullock; an abattoir case, whose history was unknown. The peritoneum only was affected and a thorough examination of the carcass revealed no other lesions. Those that existed were on the omentum and spleen. On the omentum they showed a very handsome arborescent appearance, where the melanotic pigment was deposited immediately beneath the peritoneum. The peritoneal covering of the spleen was also studded with melanotic patches. The melanotic deposits existed also in the splenic substance.—(*Ibidem.*)

UNUSUAL CASE OF CYSTIC CALCULUS IN A DOG [*By the same*].—Post-mortem examination of a dog chloroformed on account of his incurable and morbid condition. At the autopsy a prominence was found at the fundus of the bladder, due to the formation of a pouch in which a calculus had been deposited.

The bladder which was distended to extreme, contained a spherical calculus wedged into the neck of the organ and occluding it. The calculus fitted the pouch of the fundus exactly. The walls of the pouch were simply formed by the peritoneum and the mucous membrane. The muscular coat had evidently been ruptured. The entire mucous coat was inflamed.—(*Veter. Journ.*)

INTERESTING CASE OF TUBERCULOSIS IN A HORSE [*A. H. Towne, M. R. C. V. S.*, and *Prof. F. Hobday, F. R. C. V. S.*].—A ten-year-old horse gets lame. To be fired, he is cast. He does not improve of his lameness. Then he refuses feeding and loses flesh. Turned out, he improves in his feeding, but becomes more and more emaciated. Then he presents peculiar symptoms, has disinclination to bend his neck, when he turns round he moves the whole body in one mass. Then he has great difficulty in picking up his food from the ground, the neck is stiff and painful. Cervical muscles are much wasted and a certain amount of pain is observed when pressure is applied over the vertebræ. Tuberculin test gives a distinct positive reaction. The horse is killed. Characteristic ostitis and periostitis are detected on every one of the cervical vertebræ. There were tuberculous lesions in the spleen. All the other organs were healthy.—(*Ibidem.*)

FRACTURED OS PEDIS [*Lieut. E. Hearne, A. V. C.*].—An old horse ridden at a fast gallop fell heavily on the point of the off shoulder. He exhibits all the symptoms of radial paralysis, and examination carefully made of the whole leg and foot failed to indicate any other traumatic cause explaining the condition. After remaining six weeks in slings, the horse was walked out. He shows great difficulty in bringing the leg forward and places the foot on the ground in a careless manner, repeatedly stumbling on uneven ground. There was slight rotary motion of the limb. The olecranon muscles are much atrophied. Gradually increased exercise carried out for some time gave some improvement to the muscles, but the lameness remains the same. The horse was turned out for four weeks more with no change in his condition. The lower end of the limb is X-rayed and a fracture of the os pedis can be made out in the negative. The animal is destroyed. The fracture extended through the articular surface from a little on one side of the median eminence of the superior face of the bone and involved the entire thickness of the os pedis.—(*Veter. News.*)

RETENTION OF A FŒTUS IN THE BITCH [*Herbert A. Luke, M. R. C. V. S.*].—A retriever bitch gave birth to a litter of nine healthy pups. After that she suffered with continuous discharge, thick, odorless, and occasionally streaked with blood. With that exception she appeared in perfect health. Treated for five months with astringent and various injections, she had no improvement. Finally the owner consented to have the operation of hysterectomy performed upon her. The author did it. The uterus being removed at the cervix, after ligaturing the stump and the blood vessels which were quite large. The left horn was found containing the remains of a fœtus about the size of a normal retriever puppy, which had no offensive odor. Two of the ribs had left the horn and had traveled as far as the body of the uterus. The recovery of the bitch was uneventful.—(*Veter. News.*)

RABIES IN PUPPIES [*F. E. P.*].—The following show the value of the suggestions of Remlinger relating to the danger of rabies by young dogs. It is a fox terrier six weeks old. He developed all the symptoms and bit two persons. He is killed. Inoculation and the presence of Negri bodies confirm the diagnosis of rabies made of his case. In a second case it is a two months' fox terrier again which bites three persons, and in which Negri bodies were also found at the examination of his brain. A third case is from a three months' dog which a month before had two litter brothers and a sister dead by paralysis and whose mother had run away and was lost sight of; he also had rabies.—(*Veter. Record.*)

MONSTROSITY IN A FOAL [*J. Donaldson Pottie, M. R. C. V. S.*].—Colt, foal of first-class breeding, with no history of monstrosity in ancestors, is born a month ahead of its time. He is lean and apparently suffering from ascitis and double inguinal hernia. He dies the following day. The near fore-foot was cloven like that of a calf. The os-pedis and coronæ were double, with double articulations up to a single and large os-suffraginis. The extensor-pedis tendon was bifurcated. The foal could walk perfectly well on his cloven foot. The autopsy showed the liver and kidneys much enlarged and the abdomen containing straw-colored fluid. The inguinal rings were wide and open and left large portions of intestines pass through into the scrotal sacs.—(*Veter News.*)

SUPPURATIVE OMARTHRITIS IN THE HORSE [*N. H. Mellon, M. R. C. V. S.*].—An aged bay mare gets a kick on the off shoulder. A few days later she is very lame. The shoulder is much enlarged and shows a small opening in font of the point, from which thick yellow pus is discharged. There is great pain and high fever. Temperature is up to 105.2°. and the puise to 84. The wound of the shoulder is freely opened for better examination and several sinuses were exposed running in various directions and penetrating into the joint. The prognosis was very doubtful, but the owner desired the treatment. This consisted in free incisions of all the sinuses, making them empty into one channel, drainage tube was applied and prolonged and frequent cold water irrigations resorted to. The mare in slings; this treatment was kept up for 18 days, when improvement began to be manifested. With the exception of a slight relapse of short duration, the mare gradually improved and after less than a month had sufficiently recovered to be able to do slow work.—(*Veter. News.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

LUXATION OF THE SHOULDER JOINT [*Prof. Dr. Fontaine.*]—These injuries are accompanied with such alarming symptoms that their treatment is seldom undertaken. However, a few cases are recorded where recovery has been so rapid that attempts at treatment seem to be imposed. The author records another case. While galloping, an eleven-year-old thoroughbred is brought before an obstacle, misses the jump, and falls. Raised a few minutes later, he cannot walk; the right foreleg is disabled. There is functional impotency, total abduction of the leg from the point of the shoulder down. Above this, and on the inferior portion of the scapula, there is a marked depression. The humerus is dislocated upwards on the scapula. There is great pain; the horse moves on three legs. Reduction was attempted at once. The horse was cast on the left side. Counter extension and extension being properly applied, the leg was pulled first in the direction of its own axis, then in forced abduction, while the hands

applied, on the dislocated humerus, pushed downwards and inwards the head of the bone. A snapping noise told of the reduction having taken place. Extension and counter-extension were kept up for an hour; .50 c. c. of saturated solution of common salt were injected subcutaneously around the joint, and the horse secured short in his stall for forty-eight hours. Six days after he was able to return to work.

The author relates also of another case where reduction was not attempted. The horse was only placed in slings; he did not improve. After twenty days he had a fall, got a diaphragmatic hernia and died. The lesions of the shoulder were found then to be insignificant and attempts to reduction might have been followed with good results. For the author, general anesthesia ought not to be resorted to unless the reduction is impossible without it.—(*Rev. Gen. de Medec. Veterin.*)

TRAUMATIC HEMATOMA [*Mr. Huguier.*]—A horse was presented to the writer with a hematoma of traumatic origin. It was not very large and was situated at the antero-internal face of the thigh, about its middle third, and considerably away from the superficial and deep blood vessels. The horse was secured in a Winsot's stock and the cyst opened with a free incision, giving escape to sero-bloody liquid similar to that seen in ordinary hematomas. Suddenly an abundant venous and arterial hemorrhage started. The animal got very nervous and made many attempts to free himself. To find and secure the blood vessels from which the hemorrhage came were useless. The application of hemostatic forceps here and there, of ligatures on the supposed tracts of the vessels, succeeded nothing, and it became necessary to proceed to a regular compressive packing of the cystic pouch with wadding and perchloride of iron. It was only after one hour that the hemorrhage was stopped. The loss of blood had been very great and it was feared at one moment that the animal would succumb to it. He, however, recovered. Probably the ramifications of the blood vessels had been injured and ruptured by the traumatism, and when the cyst was open the hemorrhage was able to start anew, the pressure upon the injured vessels having been removed.—(*Bullet. de la Soc. Cent. de M. Vete.*)

INTESTINAL OBSTRUCTION BY FOREIGN BODIES IN DOGS [*Mr. Bernard*].—While it is true that dogs may live for some time

with foreign bodies in their intestines, it seems important not to wait too long for their removal. The author records the following cases in support of this remark:

A black poodle presents all the symptoms of intestinal catarrh. This condition exists since some time, probably several months. The history is, that two years before the dog had swallowed a five-franc piece (say, a dollar silver coin). Laparotomy was proposed. The owner declined it as the dog did not seem very sick. Three months later he had another severe attack of bowel trouble. The owner asked for the operation. It was too late; the dog died during the night. At the post-mortem there was found gangrene of the small intestines in one spot where the silver coin was arrested.

Another poodle manifested all the symptoms of intestinal catarrh also. Palpation of the abdomen revealed the presence of a hard, irregular, foreign body as big as a nut. Six months after the svmptoms were so alarming that the owner demanded an operation. Again it was too late. The dog died in three hours. Post-mortem revealed the presence of a stone which, according to the owner, the dog had swallowed two years before while playing.—(*Rev. de Pathol. Comparée.*)

Enzooty of Avian Tuberculosis With Possible Human Origin [*Mr. Darmagnac, Army Veterinarian*].—A tuberculous man was selling chickens to another party, who placed them among others, healthy until then. After a few months some of the new hens died; the cause of death was not looked for. Then a splendid turkey being killed it was found to have tubercles in the liver, the kidneys and the intestines. Then other hens died; they also had tuberculosis. Other fowls followed in the same way, and, notwithstanding radical measures being taken, the condition did not improve. Guinea pigs were inoculated with lesions from the hens. Only one died after 58 days. The interest of this record is only that it adds one more observation to those which try to prove the reality of the transmission of human tuberculosis to fowls. As it is probable that in this case the birds sold by the tuberculous man were contaminated by him.—(*Rec. de Medec. Veter.*)

Pericarditis by Foreign Body—Puncture of the Pericardium [*Mr. A. Louis, Sanitary Veterinarian*].—A fine cow presented all the symptoms of pericarditis by foreign body. The

owner feels very sorry, as he intended to sell her to the butcher, and since several days she eats nothing and is losing flesh rapidly. The case is very serious and perhaps immediate slaughter would be the best thing to do. However, to give some temporary relief, which might help her to recuperate to a certain extent, puncture of the pericardium is suggested. Between eight or nine quarts of very offensive yellowish fluid purulent are extracted. Iodoform dressing is applied externally. The next day there is great improvement in the condition of the animal; she eats better. The dressing is removed and changed every day. The nature of the discharge is improved also. The cow eats better and better. She regains some of her fat, and after two weeks from the day of the operation she is sold well. The author thinks that the operation is indicated as a temporary relief to permit animals to be brought into condition for advantageous sale.—(*Ibidem.*)

RUPTURE OF THE INTERNAL LIGAMENT OF THE FETLOCK—RADICAL RECOVERY [*Mr. D. Bonnigal*].—A heavy draught horse, while in harness, falls on the right side, and, after getting up with much difficulty, he is walked home, showing, says the owner, as if he was hurt on the left hind leg. He is made to walk straight forward, to turn to the right, and with only a slight hesitation for standing on the right fore leg, there seems to be nothing to explain the difficulty in walking observed immediately after the fall. He is made to walk once more, but this time he is made to turn to the left. He then manifests great pain, cannot get on his right leg for a few seconds, and then he does it and resumes his walk forward without difficulty. There is a small fluctuating swelling on the inner face of the right fetlock and a blister is applied, when at that moment the writer raises the foot of the animal and notices that the joint can be dislocated outwards and that the pasterns can be brought away from the normal line and form an angle of about 40 degrees. The trouble was a complete laceration of the internal ligament of the joint and of the articular corresponding bursa. The blister was immediately washed off and a bandage made with two splints and roller applied. The recovery was perfect in six weeks. (*Prog. Veter.*)

EXTRA-UTERINE GESTATION IN A CAT [*Mr. R. Verdin, Jr.*].—A cat had kittens away from home. When she comes back

she is much depressed, weak, tympanitic, and refuses all food. She seems to be in great pain; her abdomen is much distended, and on exploration a round body as big as an apple is felt in it. Constipation is suspected and purgatives given without results. Fluid is then detected in the abdomen. The animal dies. AUTOPSY—Purulent liquid escapes as the abdomen is opened. Peritonitis is well-marked. There is a tumor attached to the great curvature of the stomach. This is opened and a fœtus developed and at term is found. Back of this there is another smaller, adherent to the omentum, also containing a fœtus not fully developed and undergoing calcification. Had the diagnosis been made, laparotomy would have been the only indication for treatment.—(*Prog. Veter.*)

SARCOMA OF THE PILORUS—PERITONEAL AND PLEURAL DYTHRIDIOSIS IN A CAT [*Prof. Cadeac*].—Five-year-old cat, affected with ascitis, is very thin and anemic. So treatment is advisable and the animal is chloroformed. At post-mortem the abdominal cavity is found containing large numbers of flat worms swimming in a small quantity of citrine yellow fluid. There were larvæ of Mesocestoides lineatus or dithyridium, a tænia parasite of dogs. The peritoneum was slightly inflamed. In the pleura there were a large quantity of worms. The parietal pleura offers nothing peculiar; but the surface of the lungs is covered with tubercles in various stages of development. Numerous parasites were also observed. The microscopic examination of some of the tubercles revealed the lesions of broncho-pneumonia. The piloric region was the seat of a spheroidal irregular tumor as big as a small orange. It is hard, of whitish color, and projecting into the piloric canal. There was also another smaller growth hanging on the great curvature of the duodenum. Both were fibro-sarcomas in nature.—(*Journ. de Zootechnie.*)

HUNGARIAN REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

FÆCAL STASIS IN THE LARGE COLON OF A HORSE WITH DISPLACEMENT AND NO STRANGULATION [*Prof. Marek, Budapest*].—In a horse presenting all the symptoms of fæcal stasis,

rectal examination revealed the following condition. The cæcum distended by gases, lying immediately on the superior wall of the abdomen transversely to the left and then bending downwards towards the middle surface of the spleen. Under the base of the cæcum is felt a sacciform portion of the colon filled with soft matter; the colon is passing obliquely to the left and downwards, and immediately in front forms the transverse portion; it turns after forward, passes under the sacciform dilatation and arrives at the inferior abdominal wall, in the right iliac fossa upon the curvature of the pelvis. The left inferior portion is thus alongside the superior part. The superior and left portion, the only one that can be reached, is much dilated with gases; and a puncture per rectum had to be performed. Death took place after twenty-four hours by rupture of the intestines. At the autopsy the intestine was found in the condition described and the sacciform dilatation was lacerated. Signs of stasis were missing. The cause of failure in the treatment was the bend of the first portion of the small colon resulting from the displacement of the dilated portion of the large.—(*Allator. Lapok and R. G. M. V.*)

Two Cases of Strangulation of the Small Intestine by Pedunculated Lipoma [*Same Author*].—A horse, affected with colic, lays down and rolls. By rectal examination an intestinal loop is felt strongly stretched for a length of about 40 centimeters. It is attached by a fold and painful cord which forms a very tight ring. This ring is formed by the peduncle of a tumor as big as an apple. After thirteen hours of pain the pulse rises to 48 and 56, the temperature is 38.6° C. Laparotomy is performed two hours later. On opening the abdomen a dirty red liquid escapes. It has a fetid odor and the intestines are gangrenous. The tumor removed and examined is a lipoma whose peduncle has acted as a ligature. The horse died eight hours after with complete necrosis and giving away of the strangulated portion. With the other horse similar conditions were observed. At the rectal examination the tumor was torn away per rectum, but the horse died ten hours later, after having remained perfectly quiet. Autopsy showed strangulation of the small intestine, 30 centimeters long, due to a pedunculated lipoma.—(*Ibidem.*)

Tuberculous Enteritis in a Horse [*Same Author*].—Since five weeks a horse has lost his appetite and has great diar-

rhea. He loses flesh gradually and strength rapidly. His feces are liquid, yellow and very offensive. Temperature varies between 40.8° and 39.3°. The pulse is 76. At the post-mortem there were found numerous tuberculous ulcers in the large and on the origin of the small colon, the mesenteric glands were swollen as big as a pigeon's egg and contained masses of tuberculous bacilli.—(*Ibidem.*)

HEMORRHAGE OF THE BLADDER IN A DOG [*Same Author*].—A dog is sick since two months; he has lost flesh, and his urine is colored with blood, yet it does not contain any red corpuscles that can be detected. Palpation of the abdomen indicates a marked dilatation of the bladded which feels hard. Repeated washings of the bladder, after removal of the urine and subcutaneous injections of ergotine, remain negative, and the dog dies after a complete retention of urine which lasted two days. The post-mortem revealed chronic hemorrhagic cystitis and the presence of a clot of blood as big as a child's head, part of which was engaged in the initial portion of the urethra.—(*Ibidem.*)

A CASE OF PARALYSIS OF THE TAIL AND SPHINCTERS (*Neuritis caudæ equinæ*) [*Prof. Marek of Budapest*].—Observed in a horse after a traumatism inflicted some three or four weeks previous. These accidents presented symptoms heretofore not described, namely, that, besides the ordinary manifestations, troubles of defecation and micturition, there were observed also a lumbar paresia which after a few days ended in complete paralysis. At the autopsy there was found an hematoma in the neighborhood of the ischial arches. The internal face of the dura-mater, from the fifth pair of lumbar vertebræ back, was lined with small, warty granulations, and the corresponding spinal cord had a diffused red coloration, more marked on a level with the fifth and sixth lumbar pairs. The first and second pairs were thickened. The histological examination revealed chronic interstitial inflammation of the cord and also of the two last lumbar pairs. The cause of this was probably the traumatism received at the base of the tail and giving rise to the hematoma.—(*Ibidem.*)

NON-SYPHILITIC ULCERS IN DOMESTIC ANIMALS [*Same Author and Kovacs.*]—During copulation a wound of the penis occurs in a bull, which is about one centimeter wide, and soon

assumes the aspect of an ulcer. Upon the dorsal face of the penis there is a loss of substance with red, ragged edges. The surface of the wound is covered with yellow-green pus and around it the penis is swollen and hangs out of the sheath. The region is painful and the inguinal glands swollen. With proper treatment everything subsides.

In a dog a painful swelling of the sheath is observed. There is a purulent discharge. Three ulcerations are detected with red, irregular and ragged edges, and soiled with necrotic tissues. Similar ulcerations are found round the lips, eye, internal face of the thighs, and the scrotum. Another dog has similar ulcers on the ears, which seem to originate from contagion from the first dog. Although the identity of these accidents has not been demonstrated, the author considers them as analogous to the soft chancre of man.—(*Ibidem.*)

GERMAN REVIEW.

By JOHN P. O'LEARY, V. M. D., Buffalo, N. Y.

A NON-IRRITATING DEPILATORY APPLICABLE IN VETERINARY SURGERY [*Von Simonirs and Neau*].—In order that surgical operations may be performed aseptically, the hair should first be shaved off the part; yet this procedure is not without its disadvantages. After shaving, the capillaries of the skin dilate; as a consequence when an incision is made at that particular point a copious flow of blood follows, and an erythema appears quite frequently at the seat of operation after shaving, which retards a rapid and complete cicatrization. The authors instead of using a razor, apply the well-known depilatory discovered by Dr. Belonet, which does not irritate the skin and which has a salutary effect. Its composition is as follows: Natrium mono-sulphuratum, calcuria usta, amylum Britici, add equal parts aqua Q. S. The first two ingredients must be kept in hermetically sealed bottles. When the mixture is to be compounded, the sodium mono-sulphuratum must be mixed with the corn starch forming a homogeneous powder, then the calcined lime added and the whole triturated with water until a semi-fluid mass

is formed. The depilatory should only be prepared as occasion requires. A sufficient quantity to be spread with a spatula from 3-5 mm. in thickness upon the previously clipped part and allowed to remain on a quarter of an hour. The application should then be well washed off when the skin will appear completely denuded of hair, not in the least erythemic, and completely aseptic, so that the field of operation is ready for the surgeon. The hair follicles remain uninjured, the hairs grow again and retain their natural color. This depilatory is very valuable when surgical operations are to be performed on small animals where the razor could not be used. It has also been demonstrated that the paste is of value even as an anti-septic on injured parts, and from which the hairs cannot well be shaven off. It may also be applied to such parts, for instance, when thoracentesis is about to be performed and in fact any part of the body where it is necessity to remove the hair.—(*Berliner Tier Wochenschrift.*)

Iodine as a Disinfectant in Operations [*V. G. Sutton, Kensington*].—Sutton believes the attention of active city practitioners should be directed to a procedure highly recommended in a British journal, which in simplicity and effectiveness is not excelled by any other method. Since 1906 Sutton performed paracentesis upon 20 dogs without secondary infection and attributes these successful results not to the sterilization of the canula nor to the disinfecting and removal of the hair at the seat of operation, but rather to the thorough application of tincture of iodine, for at least four days in succession to that particular part of the thoracic wall (an absorption remedy). Through the article in the *British Medical Journal,* he became convinced that the tincture of iodine had an anti-septic action, and he now applies it regularly and methodically. In more than twenty cases of neurectomy he saturated thoroughly the field of operation and its vicinity with tinct. of iodine. In the course of the operation the technical precautionary measures were, of course, observed, such as disinfecting the wound with carbolic acid, sterilizing the instruments and so forth. However, the unusual rapidity with which the wound healed, in his opinion was due to the action of the iodine. In castration of old stallions where the skin of the scrotum is treated with tinct. of iodine undiluted before the operations, the result is amazing. There is little irritation following its use, scarcely any suppuration and rapid healing of the wound. Equally favorable results are obtained in the castration

of dogs and in the removal of small tumors by operation. The best results were obtained in the castration and other surgical operations on cats. Tincture of iodine diluted 1 to 4 prevents suppuration and proves superior to every other method of disinfection and antisepsis. In wounds of the eyelids in horses, the nose, the lips, and small lacerated wounds, it is unexcelled. Sutton explains its action thus, that the tincture of iodine in contradistinction to other disinfectants thoroughly impregnates the skin with a highly valuable antiseptic; even saturates, and so guarantees its permanent action.—(*Deutsche Tier Wochenschrift.*)

THE TREATMENT OF SERO-SANGUINEOUS ACCUMULATIONS BY MEANS OF INJECTIONS OF PURE TINCT. OF IODINE [*Cadix and Pireau*].—The authors employed in the treatment of wind galls, cysts and sero-sanguineous accumulations, injections of pure tincture of iodine. After a thorough disinfection of the most prominent part of the cyst, they puncture at that point and allow about one-third of the contents to escape and inject according to the size of the pocket one-quarter gramme of tinct. iodine, massaging the whole tumor in order that the iodine might be thoroughly mixed with its contents and reach the walls of the cyst. If the surrounding tissues are odematous, they apply for some days previous to the operation an astringent poultice of clay or carbonate of lime or sulphate of iron and vinegar. After the injection the volume of the cyst increases rapidly and for 6-8 days remains stationary; after which absorption of the fluid begins which is accomplished after fourteen days. During the treatment the horse can be worked.—(*Berliner Tier Wochenschrift.*)

FIBROLYSIN THERAPY: FIRST, FACIAL PARALYSIS THROUGH THE ACTION OF SCAR TISSUE; SECOND, SCLEROSIS OF THE ANTIBRACHIUM [*Dr. O. Vogel, Kreuznach*].—First—A horse received an injury at the anterior border of the masseter muscle, facial paralysis followed, which was attributable to the cicatricial contraction in the immediate vicinity of the nerve. Massage, spirituous embrocations and veratrin were ineffective, consequently the author experimented with Fibrolysin (Merck). At the conclusion of the treatment no beneficial effects were observed, nevertheless there subsequently followed a restitutio ad integrum, so that the author was inclined to view the secondary effect as due to the action of the fibrolysin.

Second—A horse received a kick on the right fore-arm. After a time the injured limb assumed twice its normal circumference and become as hard as a board. At this stage movement of the member was scarcely possible. After injecting fibrolysin three or four times the extensor muscles became flaccid, and after a carton of the remedy had been used with the simultaneous application of massage and iodovasogen, the limb became almost normal. At the same time the lameness disappeared completely, so that the horse was considered as cured.—(*Berliner Tier Wodenschrift.*)

Concerning the Suppression of Heaves [*H. Szollos*].—The author experimented on heavey (broken wind) horses with the seeds of datura stramorium, the remedy which gypsies and also many horse dealers use to suppress the symptoms of broken wind temporarily, and which had also proven an experimental fact after a prolonged test at the Budapest clinic. The methods employed by gypsies and horse dealers are as follows: The heavey horse is fed for 7-10 days with green food or with dry feed (dust free) moistened with water. Then 25-40 grammes of the seeds are added to the drinking water or the same quantity of the seeds may be given in half a liter of water. Beforehand the horse receives no food for half a day. After the lapse of a few hours the horse so treated is presented for sale; care being taken to place him in a cool place, but protected from draughts. The medicinal effect is noticeable in about two hours, reaches its maximum in 4-8 hours and scarcely ever lasts 24 hours. The dyspnea is always ameliorated, but most strikingly so in pulmonary emphysema, and least so in cardiac complications, but never to the extent that it cannot be detected by an expert; particularly when the animal is exercised for at least ten minutes.—(*Allatorvosi Lapok*).

Inflammation of the Tongue in the Course of Strangles, and Its Treatment [*M. Graf*].—In the various stables in which cases of strangles occurred, there appeared in six foals complicated with other symptoms of strangles an intensely acute inflammation of the tongue, the latter protruding from the mouth and consequently interfering with the prehension of food. Deep scarifications into the muscle substance of the tongue, directly brought about a reduction in the volume of the organ and at the same time made the mastication of food pos-

sible. Only in one case was it necessary to push the tongue back into the mouth and retain it in position by a broad bandage passing over it and wound around the lower jaw. Agreeing with Szollos, the author recommends scarification of the acutely inflamed tongue at the earliest possible moment.—(*Allatowosi Lapok.*)

THE ACTION OF ANTIPERIOSTIN [*Chief Vet. Schade, Dresden*].—Schade had occasion to apply Dr. Klein's antiperiostin (a mercurial iodo-cantharidine preparation) in the case of a horse which had splints of about equal size on both fore legs. On one of the affected legs he applied the above preparation and on the other a sharp blister. The splint treated with the latter application was reduced to about two-thirds of its former size, while the splint treated with antiperiostin had almost completely disappeared.—(*Deutsche Tierärztliche Wochenschrift.*)

THE OPHTHALMO REACTION IN A CASE OF GLANDERS OF THE HORSE [*Panizza*].—Panizza had used mallein for diagnostic purposes in ten cases of suspected glanders. He diluted the mallein with ten times its weight of a physiological salt solution, instilling from four to eight drops into the palpebral conjunction and then massaging the lid. After the lapse of six or seven hours, sometimes 12-15 hours, positive symptoms arise such as hyperæmia, lachrymation, œdema of the lids and finally a muco-purulent discharge. In five positive reacting cases the diagnosis was verified on post-mortem examination. In the positive cases also the subcutaneous injection of mallein gave positive results and on the other hand negative results were obtained where no ophthalmo reactions appeared.—(*Berliner Tier. Wochenschrift.*)

THE AUGUST CAT—PUSSY'S PLEA.

Oh, listen to my plaintive plea;
And may your hearts be touched thereat!
I am, as all the world can see,
A harmless, necessary cat.

The luggage now is in the hall,
Portmanteaus lie upon the mat;
Awaiting for the van to call—
And no one's thinking of the cat.

They're off, as off last year they went,
'Tis still within my memory pat,
How on their pleasure's plan intent
They overlooked their friend, the cat.

Till then, supplied with daily milk,
Well fed, well liking, sleek and fat,
My tabby coat, as smooth as silk,
I lived a glad, contented cat.

But on my own resources cast
My food as best I could, I gat,
And till the holidays were past
I prowled, a stray and starveling cat.

They'd left me plump, they found me thin,
Yea, wasted to a shadow flat,
A bag of bones incased in skin—
The ghostly semblance of a cat.

No single cup of milk to drink
For thirty days! Just think of that!
And pray your readers, all to think
Of what awaits the August cat.

(*Our Dumb Animals.*)

SOCIETY MEETINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The regular meeting of the VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY was held in the lecture room of the New York-American Veterinary College on Wednesday evening, November 3, with the President, Dr. Grenside, in the chair. There was a good attendance of members and visitors. Among the visitors was Miss B. Bruce Reid, a graduate of Melbourne Veterinary College. Dr. Reid is in general practice in Australia. She is visiting the various veterinary colleges of America. After the usual routine business was transacted, Dr. Grenside introduced the speaker of the evening, Prof. W. L. Williams, of the New York State Veterinary College, Ithaca, N. Y., who presented an excellent paper on "The British and American Veterinary Professions." Dr. Williams spent the past summer in Great Britain and visited the various veterinary institutions. He attended several of the veterinary societies' meetings and had a first-class opportunity of meeting many of the members and of studying the profession as it exists in Great Britain to-day. Of the veterinary colleges, he mentioned particularly the institutions located at London, Liverpool and Dublin, pointing out wherein they excelled, and also the points which seemed to him were weak as compared with similar state or private veterinary colleges in the United States and Canada. Dr. Williams' paper will appear in full in the AMERICAN VETERINARY REVIEW, and it is hoped that every member of the profession in America will read it carefully.

Dr. R. H. Kingston, of New York City, presented a paper on "Protargol and Its Uses." This paper consisted of original research with this drug, principally in the treatment of Purpura hæmorrhagica. Dr. Kingston's observations with protargol have been quite extensive and cover a period of about five years. There followed a good discussion in which several of the mem-

bers reported excellent results in the use of protargol in cases of purpura and strangles. This paper will also appear in the AMERICAN VETERINARY REVIEW.

Dr. C. N. Darke, of New York City, presented an interesting report of paraphymosis in an eighteen-year-old gelding, with recovery without amputation.

Meeting adjourned 11 p. m.

W. REID BLAIR,
Secretary.

THE OKLAHOMA VETERINARY MEDICAL ASSOCIATION.

A meeting was held in Oklahoma City, July 12, Dr. L. J. Allen, vice-president, in the chair, and Dr. M. P. Hunt, Enid, secretary *pro tem.* As all proceedings had been so carelessly kept, it was thought expedient to elect, what would be known as an Executive Committee, to draw up new constitution and by-laws, and to call a meeting as soon as same were ready.

Drs. L. J. Allen, R. A. Phillips and C. C. Hooker, all of Oklahoma City, were elected to compose the Executive Committee.

Following this, a few reports of cases met with in a general practice and discussion of same, after which, meeting adjourned subject to call of Executive Committee.

October 5—Meeting held in same city; called to order by Dr. L. J. Allen, and, after reading minutes of previous meeting, the proposed constitution and by-laws were read, two minor changes made, and then, on motion of Dr. J. E. May, Yukon, seconded by Dr. S. H. Gallier, Norman, adopted as a whole.

The next order of business was election of officers, which resulted as follows:

President, Dr. H. F. Ketcham, Alva; Vice-President, Dr. Geo. Pugh, Lawton; Secretary, Dr. R. A. Phillips, Oklahoma City; Treasurer, Dr. C. C. Hooker, Oklahoma City.

The President then appointed the following committees:

Executive Committee—Dr. L. J. Allen, Chairman, Oklahoma City; Dr. C. E. Steel, Oklahoma City; Dr. M. P. Hunt, Enid.

Intelligence and Education—Dr. R. A. Phillips, Chairman, Oklahoma City; Dr. E. V. Robnett, Oklahoma City; Dr. G. H. McKenny, Ardmore.

Committee on Diseases—Dr. Wood, Chairman, Oklahoma City; Dr. D. H. Hinckley, Watenga; Dr. H. W. Ayers, Shawnee.

Committee on Necrology—Dr. R. K. Russell, Chairman, Chickasha; Dr. Dan. Willmet, Chickasha; Dr. W. H. Martin, El Reno.

Committee on Resolutions—Dr. S. H. Gallier, Chairman, Norman; Dr. J. E. May, Yukon; Dr. L. L. Lewis, Stillwater.

The Executive Committee then retired and held a short session, during which time the following papers were read: Dr. E. V. Robnett, "Canine Distemper and Equine Influenza"; Dr. R. A. Phillips, "Social Status of Oklahoma Veterinarians"; Dr. H. W. Ayers, "Advantages and Disadvantages of Quacks."

Meeting then adjourned *sine die*.

R. A. PHILLIPS,
Secretary.

MAINE VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting of the M. V. M. A. was held in Waterville, October 13, 1909, Dr. Murch in the chair and Dr. Joly at the secretary's desk. The following members were present: Drs. Murch, Huntington, F. L. Russell, E. E. Russell, F. E. Freeman, R. E. Freeman, I. L. Salley, N. H. Spear, W. H. Lynch, C. W. Newton and A. Joly. A despatch was received from Dr. Perry wishing for a rousing meeting.

Dr. F. E. Freeman read a paper upon the diagnosis and treatment of lameness, and Dr. E. E. Russell reported a case of torticollis which was very interesting.

It was voted to scratch out the name of Dr. Estes from the roll call.

The following gentlemen were appointed to read papers at the next meeting to be held in January at the Augusta House, Augusta: Drs Blakeley, Newton and Lord.

A. JOLY,
Secretary.

HON. W. T. FINLAY, since the formation of the provincial government, Minister of Agriculture for Alberta, resigned October 21, and will be succeeded in office by Duncan Marshall, M. P. P., Olds. Mr. Finlay has not been in the best of health lately, and his resignation is due to that cause. Mr. Marshall is a newspaper man, at present proprietor and editor of the Olds Gazette.—(*Farmer's Advocate.*)

NEWS AND ITEMS.

THE annual smoker of the Delta Sigma Beta, a Greek letter fraternity at the United States College of Veterinary Surgeons, was held at Hotel Fritz Reuter at Washington, D. C., on October 30, 1909. There were over twenty-five members of the fraternity and several guests present.

Among the guests present were Prof. G. A. Prevost, treasurer of the college and professor of jurisprudence; Dr. C. H. Bowker, a prominent member of the medical profession and professor of physiology and histology at the college; Dr. C. B. Robinson, dean of the college and professor of surgery and comparative medicine; Dr. Joseph H. Heagerty and Dr. Laurence Hickman, both prominent veterinarians of Baltimore, Md., and Charles Vincent, also from Baltimore, Md.

Among the older members of the fraternity present were Dr. M. Page Smith, secretary of the college and professor of anatomy, he being one of the charter members of the fraternity; Dr. H. S. Gamble, professor of materia medica and therapeutics, and Dr. J. H. Mueller, professor of freshman anatomy.

Dr. C. H. Bowker gave a very good talk upon the good of fraternities in colleges and spoke of the general spirit of fraternity which prevailed among the member of the Delta Sigma Beta.

Dr. M. Page Smith spoke of the good which the fraternity had done the college in the past and how it had helped to build up the enrollment from year to year.

Prof. Prevost, being an attorney, gave a most excellent talk on fraternity.

These meetings of this college fraternity have done a great deal to bring the students of the college in closer relation, and is very much contrary to many opinions which have been given in regard to secret societies being a detriment to a college. The Delta Sigma Beta is a known exception and is upheld by men in authority at the college.

DIRECTIONS FOR THE HOME PASTEURIZATION OF MILK* (By L. A. ROGERS, Bacteriologist, Dairy Division).—Milk delivered in the cities in the summer months frequently contains bacteria

* United States Department of Agriculture, Bureau of Animal Industry, Circular 152 (issued October 19, 1909), A. D. Melvin, Chief of Bureau.

in such large numbers that it is not a safe food for children, especially for infants whose food consists entirely of milk. In many cities a special milk can be secured, but this is sometimes difficult and always involves additional expense.

Under such circumstances it is advisable to pasteurize all milk consumed by small children. The pasteurization should be done in such a way that disease-producing bacteria as well as those likely to produce intestinal disturbances are destroyed without at the same time injuring the flavor or the nutritive value of the milk. This may be accomplished in the home by the use of a simple improvised outfit.

Milk is most conveniently pasteurized in the bottles in which it is delivered. To do this use a small pail with a perforated false bottom. An inverted pie tin with a few holes punched in it will answer this purpose. This will raise the bottles from the bottom of the pail, thus allowing a free circulation of water and preventing bumping of the bottles. Punch a hole through the cap of one of the bottles and insert a thermometer. The ordinary floating type of thermometer is likely to be inaccurate, and if possible a good thermometer with the scale etched on the glass should be used. Set the bottles of milk in the pail and fill the pail with water nearly to the level of the milk. Put the pail on the stove or over a gas flame and heat it until the thermometer in the milk shows not less than 150° nor more than 155° F. The bottles should then be removed from the water and allowed to stand from twenty to thirty minutes. The temperature will fall slowly, but may be held more uniformly by covering the bottles with a towel. The punctured cap should be replaced with a new one, or the bottle should be covered with an inverted cup.

After milk has been held as directed it should be cooled as quickly and as much as possible by setting in water. To avoid danger of breaking the bottle by too sudden change of temperature, this water should be warm at first. Replace the warm water slowly with cold water. After cooling, milk should in all cases be held at the lowest available temperature.

This method may be employed to retard the souring of milk or cream for ordinary uses. It should be remembered, however, that pasteurization does not destroy all bacteria in milk, and after pasteurization it should be kept cold and used as soon as possible. Cream does not rise as rapidly or separate as completely in pasteurized milk as in raw milk.—(Approved: James Wilson, Secretary of Agriculture, Washington, D. C., October 6, 1909.)

PHYSICIANS' FEES 4,000 YEARS AGO.—The subject of physicians' fees, which has been discussed so thoroughly in the *Herald,* aroused the interest of Dr. Felix von Oefele, of this city, and in this connection he told a *Herald* reporter about the fees exacted during the reign of Hammurabi, King of Babylon, 2250 B. C.

"It is interesting," said Dr. von Oefele, "to note how ancient doctors were paid. I remember when I was in Paris seeing a stone tablet in the Louvre Museum which casts some light on the subject. Hammurabi, a conqueror and King of Babylon about 2250 B. C. and who is mentioned in the Bible as a contemporary of Abraham, Lot and Melchisedech, collected all the laws enacted up to that time, compiled them and had them hewn on stone, which was found in excavations made in Susi, Persia, some years ago. These laws of Hammurabi contain many passages not unlike the laws of Moses given from Mount Sinai, and in regard to physicians' fees they contain the following:

"'Section 215—When an operator performs a difficult operation on a freeman with the knife (called scorpion) and cures him he shall receive ten shekels of silver (about $2.50).

"'Section 216—If the individual was a freed slave he shall received five shekels.

"'Section 217—If it was the slave of a freeman the owner shall pay him two shekels.

"'Section 221—If an operator mends the broken bones of a freeman or cures the wounded soft portions the operator shall receive five shekels of silver.

"'Section 222—If he was a former slave he shall receive three shekels.

"'Section 223—For the same operation on a slave the owner shall pay two shekels.

"'Section 224—For an operation performed successfully on cattle by an animal physician the operator shall receive one-sixth of a shekel.'

"Now," added Dr. von Oefele, "considering the value of money in Abraham's time and the value of money now, I think the physicians in those days were much better paid than they are at present. The above paragraphs are my own translation, but I have looked them up only recently again in books published on the subject."—(*New York Herald.*)

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
Alumni Ass'n, N. Y.-A. V. C.....	.....	141 W. 54th St.	L. L. Glynn, N. Y. City.
American V. M. Ass'n.....	.....	Chicago.....	R. P. Lyman, Kansas City, Mo.
Arkansas Veterinary Ass'n.....	.....	.....	Horace E. Rice, Little Rock.
Ass'n Médécale Veterinare Française "Laval".....	1st and 3d Thur. of each month	Lec. Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
B. A. I. Vet. In. A., Chicago.....	2d Fri. ea. mo...	Chicago.....	D. D. Tierney, Chicago, Ill.
California State V. M. Ass'n.....	.....	San Francisco.	J. J. Hogarty, Oakland.
Central Canada V. Ass'n.....	.....	Ottawa	A. E. James, Ottawa.
Chicago Veterinary Society.....	2d Tues. ea. mo.	Chicago	J. M. Parks, Chicago.
Colorado State V. M. Ass'n.....	.....	Denver	M. J. Woodliffe, Denver.
Connecticut V. M. Ass'n.....	February 1, 1910.	Hartford	B. K. Dow, Willimantic.
Genesee Valley V. M. Ass'n.....	2d wk. in Jan., '10.	Rochester.....	J. H. Taylor, Henrietta.
Georgia State V. M. A.....	.....	.....	P. F. Bahnsen, Americus.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis P. Cook, Cincinnati.
Illinois State V. M. Ass'n.....	Dec. 1-2, 1909...	Chicago	J. H. Crawford, Harvard.
Illinois V. M. and Surg. A.....	Jan. and Aug...	Louisville.....	W. A. Swain, Mt. Pulaski.
Indiana Veterinary Association...	January, 1910 ...	Indianapolis..	E. M. Bronson, Indianapolis
Iowa Veterinary Ass'n.....	.....	Ft. Dodge....	H. C. Simpson, Denison.
Kansas State V. M. Ass'n.....	Jan. 4-5, 1910...	Manhattan....	B. Rogers, Manhattan.
Kentucky V. M. Ass'n.....	.....	Not decided ..	D. A. Piatt, Lexington.
Keystone V. M. Ass'n.....	Monthly.....	Philadelphia..	S. Lockett, Glenolden.
Louisiana State V. M. Ass'n.....	.....	.....	E. P. Flower, Baton Rouge.
Maine Vet. Med. Ass'n	January, 1910. ..	Augusta.....	A. Joly, Waterville.
Maryland State Vet. Society.....	.....	Baltimore.....	H. H. Counselman, Sec'y.
Massachusetts Vet. Ass'n.....	Monthly.....	Boston.....	Wm. T. White, Newtonville.
Michigan State V. M. Ass'n.....	Jan. 25-26, 1910.	Saginaw	Judson Black, Richmond.
Minnesota State V. M. Ass'n.....	Jan. 12-13, 1910.	St. Paul.....	G. Ed. Leech, Winona.
Mississippi State V. M. Ass'n....	.....	.....	J. C. Robert, Agricultural Col.
Missouri Valley V. Ass'n.....	February, 1910..	Kansas City..	B. F. Kaupp, Fort Collins, Colo.
Missouri Vet. Med. Ass'n	.....	St. Joseph....	F. F. Brown, Kansas City.
Montana State V. M. A.....	.....	Helena.....	W. S. Swank, Miles City.
Nebraska V. M. Ass'n.....	.....	Grand Island.	H. Jensen, Weeping Water.
New York S. V. M. Soc'y.....	.....	Ithaca	J. F. De Vine, Goshen.
North Carolina V. M. Ass'n.....	.....	Wilmington ..	Adam Fisher, Charlotte.
North Dakota V. M. Ass'n.....	Call of Sec'y....	Fargo	C. H. Martin, Valley City.
Ohio State V. M. Ass'n.....	Jan. 18-19, 1910..	Columbus.....	Sidney D. Myers, Wilmington
Ohio Soc. of Comparative Med..	Annually	Up'r Sandusky	F. F. Sheets, Van Wert, Ohio.
Oklahoma V. M. Ass'n.....	.....	.....	R. A. Phillips, Oklahoma City
Ontario Vet. Ass'n.....	.....	.....	C. H. Sweetapple, Toronto.
Passaic Co. V. M. Ass'n.....	Call of Chair...	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Pennsylvania State V. M. A.....	.....	Philadelphia..	F. H. Schneider, Philadelphia.
Philippine V. M. A.....	.....	.....	Chas. G. Thomson, Manila.
Province of Quebec V. M. A.....	.....	Mon. and Que.	Gustave Boyer, Rigaud, P. Q.
Rhode Island V. M. Ass'n.....	Jan. and June..	Providence ...	J. S. Pollard, Providence
St. Louis Soc. of Vet. Inspectors.	1st Wed. fol. the 2d Sun. ea. mo.	St. Louis.....	Wm. T. Conway, St. Louis, Mo.
Schuylkill Valley V. M. A.....	Dec. 15, 1909....	Reading	W. G. Huyett, Wernersville.
Soc. Vet. Alumni Univ. Penn.....	.....	Philadelphia..	B. T. Woodward, Wash'n, D.C.
South Dakota V. M. A.....	July, 1910.....	Sioux Falls...	J. A. Graham, Sioux Falls.
Southern Auxiliary of California State V. M. Ass'n.....	Jan. Apl. Jy. Oct.	Los Angeles..	J. A. Edmonds, Los Angeles.
So. St. Joseph Ass'n of Vet. Insp..	4th Tues. ea. mo.	407 Ill. Ave....	H. R. Collins, So. St. Joseph.
Tennessee Vet. Med. Ass'n.....	.....	.....	A. C. Topmiller, Murfreesboro
Texas V. M. Ass'n.....	Call Exec. Com.	.....	R. P. Marsteller, College Sta.
Twin City V. M. Ass'n.....	2d Thu. ea. mo .	St. P.-Minneap	S. H. Ward, St. Paul, Minn.
Vermont Vet. Med. Ass'n	Jan. 19th, 1910..	White Riv. Jc.	F. W. Chamberlain, Burlington
Veterinary Ass'n of Alberta... ..	.....	.....	C. H. H. Sweetapple, For. Saskatchewan, Alta., Can.
Vet. Ass'n Dist. of Columbia.....	3d Wed. ea. mo..	514—9th St., N. W.....	M. Page Smith, Wash., D.C.
Vet. Ass'n of Manitoba.....	Not stated.....	Winnipeg.....	F. Torrance, Winnipeg.
Vet. Med. Ass'n of N. J.....	Jan. 13, 1910	Jersey City...	W. Herbert Lowe, Paterson.
V. M. Ass'n, New York City.....	1st Wed. ea. mo.	141 W. 54th St.	W. Reid Blair, N. Y. City.
Veterinary Practitioners' Club....	Monthly.....	Jersey City ...	A. F. Mount, Jersey City.
Virginia State V. M. Ass'n.....	.....	Hampton	W. G. Chrisman, Charlo'sv'le.
Washington State Col. V. M. A ..	1st & 3d Fri. Eve.	Pullman.....	R. G. McAlister, Pullman.
Washington State V. M. A.....	.....	Seattle.....	J. T. Seely, Seattle.
Western Penn. V. M. Ass'n.....	1st Wed. ea. mo.	Pittsburgh....	F. Weitzell, Allegheny.
Wisconsin Soc. Vet. Grad.....	.....	Grand Rapids.	J. P. West, Madison.
York Co. (Pa.) V. M. A.....	Dec. 7, 1909....	York, Pa.....	E. S. Bausticker, York, Pa.